

Medical Times

A Monthly Journal of Medicine, Surgery and the Collateral Sciences

Published by THE MEDICAL TIMES COMPANY at 95 Nassau Street

VOL. LI., No. 8

NEW YORK, AUGUST, 1923

Twenty Cents a Copy
Two Dollars a Year

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New York, August, 1923

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The Redemption of Over-Wrought Leaders from Energy Leaks

J. MADISON TAYLOR, A.B., M.D.

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The problem of the over-wrought man of affairs is by no means a simple one. It is constantly recurring, demanding of the medical adviser, whether friendly or professional, wisdom, tact and a practical familiarity with all the measures recommended. Many of my earlier years, spent as the assistant of a great neurologist, taught me the importance of this personal knowledge; giving me also a wealth of experience gained by traveling extensively as the physician-in-charge.

Given, then, an over-taxed, busy professional man, a captain of industry, a statesman or scholar, exhibiting strange lack of emotional balance, or "physiologic irritability with fatigue," how shall we achieve the quickest, the most permanent relief? It all depends on the kind and degree of cooperation given.

Our resources group themselves under about five heads as follows:

(1) We may permit a continuance of some occupations, but must modify them. We may employ partial rest, enforce relief from strains, begin reeducation of mental habits, outlook, regulate diet, rest and activities; may use quieting medication or so-called tonics or digestants, eliminants, may use so-called rational auxilliary measures, hydrotherapy, open air life and the like, or:

(2) We may employ occupational and educational treatment; all valuable but rarely used consistently. The adviser must himself supply large resourcefulness and tact. Much time and patient companionship are demanded of the physician. An exceptional nurse or attendant, preferably a young medical student as companion is often needed, or:

(3) Absolute rest may be obligatory for varying periods, not less than a month or six weeks, preferably eight. This oftentimes saves life and reason, especially when followed by change of scene, prolonged absence from responsibilities and relief from fixed attention. It may include spa treatment, residence in special cli-

mates and maintenance of conditions quite different to the customary; contrasts are immensely helpful, or:

(4) Sanitarium treatment is frequently useful, an inexpensive wholesome form of routine which suffices for plastic, good tempered, biddable men, or we may choose the best:

(5) Exercise and discipline cures: these accomplish extraordinary results in some cases, and are, when permissible, most economic of time.

Take a familiar instance illustrative of a peril from which many do not, or will not, escape.

A successful, but sadly over-stressed man of affairs, near middle life, recognizes himself to be miserably tired, painfully bewildered. He can no longer fix his attention on even simple problems, or maintain interest in matters which constitute his life and are ordinarily pleasurable. He becomes readily confused, peevish, loses his temper, explodes absurdly, is painfully aware of, yet laments, his ill-judged words and actions. Perhaps he sleeps badly, waking in the small hours, vastly worried, or in the early morning, conceiving himself to be beset with calamitous menacings. His digestive functions may be well maintained, though more often sadly out of gear. He admits a pain or heavy feeling at the nape of the neck, enjoys resting the back of his head frequently on some convenient surface, a characteristic feature of brain fog from excessively prolonged fixed attention. He pleads guilty to inadequate or no vacations—he "hasn't needed them;" or what time he has spent away from business has been in an atmosphere of jangle and glitter selected by his pleasure loving wife or daughter.

This last form of complaisance has destroyed many a useful man, his financial, his moral or his physical balance. Or worse yet he "is a man who knows his own mind." When he leaves his business he "is not going to immerse himself in some poky hole; he needs amusement—life." He has had unfortunately over much life

and now retains only a feeble tenure on what remains of it. Dr. Osler in a consultation concerning a man who described himself as a 'plunger,' remarked in his droll way, "quite so, one plunge more and it will be into the pit."

The condition may be due to an endless harassing routine, to minor or major anxieties, to meeting a succession of fixed engagements, giving undivided personal attention to exacting work, family or charitable. Fixed attention long maintained, induces grave nervous exhaustion. The most exhaustion agency is dread of being unable to meet one's expectation of one's self.

It remains for the adviser to decide if it be permissible to accede to the often emphatic request for "a tonic to put me on my feet"—there are "a number of pressing matters which demand attention." There always are. If one man dies, however, another will take them on, well or ill. Is his life worth anything to him? Yes. He can be patched up of course. The penalty of half measures is usually a greatly diminished efficiency, and for all time. It is permissible to compromise, with risk—to temporize, curtail responsibilities, to lessen the routine demands, to use partial rest, to regulate one's life judiciously and yet permit a continuance in activities. Too often the physician is deceived as to the gravity of the situation. A Circean web of difficulties is all the time weaving about the wavering judgment. The old time clarity of decision shrinks. Mistakes are made, false steps are taken to repair errors, chagrin follows; secretiveness is thereby developed, and sooner or later, the physical and psychical conditions are found to be far worse than before. Business reputation, even character, has already suffered. The problem is now an hundredfold more complex. There is one course left; radical rest measures are absolutely demanded.

The man is exhausted now; hitherto he was only tired out but still capable of full repair. Had he been earlier divorced completely from his surroundings, his sources of exhaustion removed, by the end of three or six months he would have been as good as ever, perhaps better. For, with renewed energies, the product of rest, change of scene, the broadening influence of travel, comparisons of view with new acquaintances, contact with strange people, he would be enlightened and remade. Thus renewed, at the zenith of his powers, a man returns from roaming a better citizen, a wiser father, a shrewder man of affairs. A six months' trip to such a man is the equivalent of a handsome life insurance. It is a practical annuity for his family.

However, if the disastrous stage above described is reached by the combined blundering of himself and his physician, the consequences must be faced and suitable remedies applied. A complete breakdown demands absolute rest, full isolation, protracted nutritive repair, not less than two months in bed, followed by two years of careful living. Mind and body are now seriously impaired. They may be rejuvenated, but never fully restored; 60 to 75 per cent restoration is all that can be then expected.

Where the fundamental fault is wholly or mainly due to deviations in original functional competence, the problem is to measure possible progress by the standard of the weakest organ; to conserve the action of this one and supplement it by bringing the others in line, and maintaining an even plane of advance toward the normal for that individual. When the basis of disability is exhaustion in the central nervous system, and where this has progressed to a point demanding rest, then this rest must be absolute of mind and body for a time, otherwise the nutritive forces cannot be rehabilitated. The most significant data in the differentiation are psychical. Ex-

perience, a wide familiarity with analogous states, can alone fit a physician to estimate correctly and control the derangements.

A few points from a full personal experience may help. On being put to bed, isolated from family, mail, newspapers, business, etc., there is usually some revolt: "his temperament is peculiar, this sort of thing will do him harm rather than good." "It may do for some but not for him; he will be made worse not better. He can't be well without exercise, can't eat, can't sleep, can't have his natural movements, etc., etc." As a matter of fact, after a week of bed a sense of "heavenly peace" replaces the peevish, flickering energies. After two or three weeks in bed, few really exhausted men can be induced to budge. After six or eight weeks, if so much absolute rest is necessary, it is a struggle to get him up and about. Yet "he feels perfectly strong, could run around the block; could resume his work as well as ever, etc." The first sitting up, which should be for only ten or fifteen minutes, is found to be quite enough. An amazing slackness of the joints is admitted; the "head spins." Often a sickening sense of weariness is experienced, especially if the erect position be persisted in long. The upsittings may be increased from once to twice daily and by five minutes only, longer each time till an hour, forenoon and afternoon, is thus spent. It requires two or three weeks gradually to resume activities—perhaps double that time. A point that tests the skill, is to regulate the resumption of motor activities.

The surest, most economic, and permanent repair is gained by change of scene, especially a return to primitive occupations and forms of life. A nice old country garden to potter about in, is a veritable Heaven for such. This is often necessary, also, as a supplement to other measures. The first requisite is to spend enough time in moving about; it should rarely be less than three months, better six. The places that should be visited will depend on the peculiarities of the individual, his personal habits, tastes, previous opportunities. When a man has heretofore taken fair vacations, has traveled much, seen the wonders of the world, his spirit being jaded by much variety by far the best course is then to "hit the long trail." This may be to plunge into the "north woods," or traveling by canoe, paddling and poling, "making portage," carrying packs, aiding honestly in the day's duties, "rustling for grub," making fires, cooking, "cutting boughs," always working with his hands or legs, or loafing from sun to sun. Thus is gained that power which Anteus showed to Hercules by repeated embraces of Mother Earth. Or let him take the pony trail on the plains or Rocky Mountain foothills; explore Zuni remains, Navajo villages, "box canyons," or traverse the "bad lands"—"Mauvaises terres pour traverser"—by no means so bad as the name would imply. These open spaces are full of delight, canyons, buttes, "mesas" and wide grassy areas where once ranged much big game. The author has been blessed time and again by such opportunities, has enjoyed to the full these rejuvenating influences, which afforded him as much, perhaps more, benefit than the patients whom he companioned.

To regain youth, pristine capacities to eat mere "food" with joy and thankfulness, to sleep as the just sleep, to wake with the light, singing "Te Deum," to swim in waters far away, to commune with "the little people of the wild," to acquire muscles of steel, nerves of compelling power, endurance of the thoroughbred horse—all this is achieved "on the long trail." A week or two is good—a mere foretaste, a preparation. It may do for a man who is merely tired. To repair exhausted energies, especially those of middle life, due to long strains, nerves jaded by years in harness, demands *many weeks*.

really three to six months. To one who never experienced the woods or the "great open" the first week may disgust. Compared with a house, a tent or a shack, especially if it rains or snows, creates a great longing for the comforts of home. It is needful for the "bear leader" to keep a tight hold on the convalescent and irritable citizen; much cajolery, encouragement, flattery or frank argument will be called into play. The toughest proposition in my experience was a melancholic lawyer of endless pertinacity and sophistry who frankly "detested all camping." Him I "held with my glittering eye" till we were too far away for him to return alone, as he bravely and repeatedly tried to do. After a month of hardening he forgot home, office, investments, and became so strong, to my intense surprise, that his feats of walking, his canoe paddling, his voracity for "hog and hominy" surpassed belief.

Years afterward, myself in the woods with a new guide, camp fire talk arose about tenderfoot wonders and tales were related by my guide about a certain "lawyer who almost wore him out." Suddenly producing a note from this man it proved to be my whilom patient, who had acquired a taste for the trail and had achieved traditional valor all his own with my woods runner. The "coureur des bois" is still what he was in the pioneer days. Emulate him and it does not take long to secure his attributes; endless endurance, a wide confidence in one's self, a serenity of mind useful in any sphere of life, above all, cheerfulness and self-control. The trip becomes a life asset—in big or little business.

Much wholesome philosophy can be thus acquired, a clarity of vision, a perspective on one's peculiarities, self-revealed faults, and characteristics, a capacity to think steadily on one line, to be happy with the least of human necessities, which qualifies one to call one's self a man, and, what is more, to do a man's work. It is doubtful if these attributes arrive at perfection by any other course. In every tired man the good is bound up with inevitable evil. A jaded spirit is no longer sane, no longer clear sighted. Morality shrinks from overmastering temptations. The woods life can cure all this. Indeed, it is difficult to see how a man can attain genuine good health unless at times he does go afar, communes with nature for a time, and reacquires some part of his lost animal inheritance. In these long vistas one can best get that perspective on one's self which brings about equanimity.

Change of air, especially of companionship, is needed by every one, well or ill. Monotonous labor, wearisome routine, continued fixed attention on affairs, themselves trifling, exhausts the fountains of force as surely as the sparks fly upward. The matter of climate is not so significant as is popularly believed. Few climates are so bad at any time as to require escaping. The dulling effect of humdrum is, however, most disastrous, especially upon certain temperaments. Not only does it limit zest, buoyancy of spirit, mental clarity; it impairs the moral sense; wears out the niceties of differentiation; and be it noted, does not permit growth in judgment, in breadth of grasp. *A man should aim to arrive at relative perfection*, consonant with his inherent powers. Monotony in labor fosters none of these perfectabilities; it distinctly inhibits them. Normal development, reasonable achievement of expectations, rarely comes to the patient drudge. Mental integrity is thereby severely warped, impeded or damaged. While much may be said in favor of a life of peace and material prosperity, yet the growth of communities and nations is always enhanced by the stimulation of opposition, of difficulties met and overcome. Resourcefulness is only developed in the face of perils, of difficulties and opposing forces.

Sanitaria, Spas, Rest Cures

Sanitarium treatment, spa methods, conventionalized systems so largely developed in Europe and growing in favor here, are to be commended on one ground or another. They all supply one important need, viz.: regularity, simplicity, control of diet, of activities, along with more or less useful measures, the specialty of the place or the physicians in control. They all make for the essential requisite, obedience to a kindly authority and self-restraint.

All these organized expedients are valuable for certain conditions, temperaments, stages of progress. They exert a restful effect, tend to readjust the overtense mental attitudes, furnish novel, unaccustomed outlets for primal energies. Unfortunately in sanatoria there is too much of association with sufferers of like kind, too much talk of mutual experiences, fighting curative battles over again, of self-pity and criticism of methods.

The chief objection to these routine "cures" is that sometimes a patient acquires the "sanitarium habit," a mental flabbiness, over much solicitude for minor ailments, a conviction that "the constitution is peculiar"; one rift in the lute suggests another, the patching up process becomes a career. Among these, I have had some success in turning the pupil into a teacher equipped with the first principles of "new thought" or "mental culture" and send them forth to grow and to proselyte.

Educational and Corrective Exercises

As a part of all measures designed to repair exhaustion states educational and corrective exercises seem to me essential in achieving the best results. At the outset it will be evident that exhaustion states invariably arise in, they may be said to be caused by, erroneous, misdirected, expenditures of force. It is seldom, perhaps never, that the prodigalities of energizing are along normal lines, conserved by accuracy and judgment.

My experience is large enough to serve as a basis of positive opinions. Men like Weir Mitchell, Horatio C. Wood, with whom I long cooperated, have repeatedly asserted in my hearing what has become accepted as an aphorism, viz: "It is not brain work but worry which exhausts." And worry is only one of the modalities of fear. These are suspense, anxiety, compulsory concentration on business troubles. In the field of athletics also, where much of my experience was gained, I long ago recorded the aphorism that "no entirely sound man is damaged in athletic competitions by however so earnest strivings while competing in an event for which he is adequately trained." To be sure the element of morbid excitement, loss of psychic balance, disorder of emotion, whatever disenthrones judgment, may contribute to bring about physical decrepitude. The exhaustion states most serious in men are chiefly of the fountains of force, not of the motor machinery, though they are closely interdependent. I have repeatedly examined athletes, as, for example, at the end of a "six days' go-as-you-please" race and those who maintained mental serenity "equanimity" and poise were not damaged.

An individual is capable of generating and converting so much of nerve force, utilizable energy, and no more. When the wearied centers are called upon to respond beyond their ability, are kept at too high a tension, the result is disturbance somewhere. For example, the function of vision, even when performed under the easiest circumstances, through correct glasses, but in excess, must become exhausted, and thereby the whole organism suffers. When irritability is evidenced at once conservation is demanded or the integrity of the organism may be shattered. From this starting point not only may serious happenings directly arise but weakened organs collapse, i.e., lungs, heart and especially kidneys.

Among the most efficacious of measures here is long range vision for hours, looking out over long spaces, seas, forests, mountains, lakes; freedom from all strains, even that of talking to companions. This is practically educative exercise of the eye.

Exercise is use. Where misuse has perverted function non-use alone is never relief enough. The cure is accurate use. Every one beyond early adult life is the better citizen, the healthier, happier member of family or community who, by accident or choice, is induced to make right, regular use of all functions.

Disuse is often more hurtful than misuse. The most potent cure of ailments due to wrong use is correct consistent use, exercise. From this truth there is no escape. Sophistries are here perilous.

Some people appear to live healthily and contentedly without making right use of their minds and bodies. Upon examination, their lives will be revealed as mere existences. They do not live, they cumber the earth. They accomplish nothing.

The exercise of the mind, the body and the spirit, thinking good thoughts, doing things naturally, wholesomely, kindly, helpfully, may suffice to maintain fairly uniform health. Conversely, overdoing unwisely, as for example, busy persons driving themselves through misplaced zeal to take violent exercise when fatigued, jaded, irritable from faulty methods of work, many may, and often do, fall into evil plights. * Always it is desirable to take counsel from some one who is equipped by knowledge and judgment to guide wisely. Nowhere, in the field of human economies, especially in the realm of physical repair, is there greater need of judicious expert advice than in the matter of motor education.

This subject is too large for more than mere allusions here. Suffice it to say that that physician is most capable of securing fullest repair, rejuvenation of completest efficiency, as well as developing latent perfectabilities, who guides his patient discreetly in the direction of his gross motor energies. Inhibition is as important as stimulation. Permit me a brief summary of the points to be considered. Latent weaknesses exist in every one, results of defective development. These may, or may not, have been revealed by the phenomena of a lowered general condition. They must be searched out, estimated, corrected, trained. This can be done by regulating the organic activities, inducing uniformity in the digestive and body building (vegetative) functions, detecting and correcting eliminative faults. Among the most forceful is manual treatment, reestablishment of blood vessel and lymphatic balance (vasotonus) through regulation of the nutrition in the governing centers in the cord. Next in order is the correction of displacements of the abdominal organs. Third is the searching out of contractures in the supporting structures, the supporting and standing muscles. The chest (thorax) especially demands attention, its mobility, cubic capacity, so essential to the activity of the contained organs, the heart, lungs, etc. The tissues of the neck, normal degree of elasticity, exert vast influence for good upon the organs of special sense, the circulation of the brain. Unless the return currents of blood and lymph are unimpeded, these precious tissues suffer. Contractures in the ligaments of the vertebral column are deeply significant. Perfect flexibility in the intervertebral tissues makes for uniform circulation in the segments of the cord and thus for vaso-motor, hence vegetative competence.

Exercise and Discipline Cures

Especially as Carried Out By William Muldoon.

Experience is often a better teacher than the best of inductive science. Many forms of "cure," successful in diverse maladies, would seem, at first sight, too onerous

or perilous for a specific case. However, bold, confident empirics often arise, showing us of the "learned profession," that our cautions lead sometimes to error, that timidity may prevent good results. An extreme type of an excellent procedure, accomplishing vastly more than the medical mind would ordinarily pronounce possible, is the method for years employed by Mr. William Muldoon of Purchase, New York, of "putting men into condition." His methods are capable of modification and improvement for application to delicate folk by the physician. The course of treatment consists of alternations of free exercise and rest under his direct supervision; regulation of diet, bathing, and above all, enforcement of absolute, implicit obedience, a strict but wholesome routine, almost an ideal system. All this makes for moral and physical regeneration. The time occupied is seldom more than three to six weeks. Those who undergo this course are, as a rule, men originally fairly robust, yet out of repair, due to a wide variety of derangements, the common basis being neglect of the fundamental principles of personal hygiene. These men are mainly exhausted by mental work, devotion to their work, professional labors, and especially by over-indulgences in what are catalogued as "the pleasures of life."

Mr. Muldoon is today, at seventy-five years of age, the epitome and prototype of the vigorous handsome man, capable of, and performing daily, the most strenuous action; sustaining large responsibilities, maintaining absolute control of himself and other men, themselves among the most successful and dominant in all departments. He began life as a soldier, then a professional wrestler, achieving the highest position, an unbeaten champion, and holding this far beyond the usual age. My recollections of him when a young man are vivid and inspiring. He was, and is, the perfection of conformation and action, splendid, impressive, dignified, of limitless courage, resource, judgment, swiftness of decision, motor accuracy, poise and self-control.

Happily for many of mankind, he turned his energies in early middle life to teaching others, training champion athletes, and later, curing of their ailments scholars, statesmen, professors and all kinds of leaders of men of their physical and mental decrepitude by means of unique measures, and with amazing success.

He has equipped a country place, well and wholesomely situated, with a large gymnasium or exercise hall, shower baths, etc., but no mechanical apparatus. Here he takes his pupils and puts them through judiciously adapted activities. The day begins before eating, with the play of "medicine ball," a large sphere the size of a water melon, weighing from three pounds upward. This is tossed from one to another, caught and thrown back, upon a system modified for different capacities and gradations of vigor.

This is followed by a cool shower bath, 70 to 80 degrees Fahr., regulated as to time, distribution of impact, method of soaping and subsequent hand-rubbing. Later in the day, most ride horses for an hour or more, usually at a walk or gentle trot, increased to a thorough jolting, alternated by a walk on foot. The water which is drunk after all hard work is hot, never cold. The day begins early, activities are followed by rest in the open air, carefully selected meals, followed by rest; a minimum of tobacco, no alcohol; billiards are encouraged; no naps, but early to bed.

It might appear that this course would over-tax many who are unused to even the most moderate exercise; who are so entirely "out of condition" as to exhibit feeble heart muscles, fatty infiltrations, general flabbiness.

(Concluded on page 198)

Physiotherapy in Dermatology

X-rays. IV

WALTER JAMES HIGHMAN, M.D.
New York.

Perhaps no other single agent is as valuable in treating skin diseases as are the *x*-rays. For this very reason there is danger of over enthusiasm. It is thus necessary to maintain a proper perspective as to the value and limitations of the medium. The *x*-rays produce their effect either by destroying abnormal tissue or by so altering the normal skin as to overcome its responsiveness to pathogenic agents. In using the *x*-rays it is important to keep in sight the necessity for treating the skin disease in its general manifestations, having recourse to the *x*-rays for their local but not unlimited efficacy. To be a machinist is not to be a physician. It is always important in determining the indications for *x*-rays to decide whether they constitute either the only, or at least, the best way of managing the case. This involves both the elements of diagnosis and proper study as to the causation of the disease.

X-rays have an affinity for abnormal tissue, particularly when neoplastic or due to inflammatory hyperplasia not based upon local infection. In the presence of local infection the rays cannot be effective unless they are capable of destroying the parasite, and this is not frequently possible in tissue, although in the test tube the rays are often weak parasitocides. Experimental studies on embryos have shown marked influence of the rays on growing cells, and the same is true of their effect upon secretory cells.

The rays also appear to have a more or less markedly selective action on elastic tissue, which they tend to destroy in overdosage. They also tend to increase pigmentation. In short, the *x*-rays destroy or inhibit the growth of neoplastic or hyperplastic cells, inhibit gland function and tend to destroy elastic tissue and provoke pigment formation. Translated into their effect upon the normal skin, they tend to produce dryness and darkening; and on abnormal skin to destroy new growths, chronic inflammations and disturbances referable to excessive function of both types of skin glands.

With correct dosage there is very little risk of injury. With mild overdosage redness may be produced three weeks after exposure. The quantity of *x*-rays required to bring about this effect is called the erythema dose. A greater dosage will produce transitory destruction of the skin, and a still greater dose will produce ulceration that sometimes will take years to heal. These stages are called first, second and third degree radiodermatitis, incorrectly termed *x*-ray burns. A dose a trifle less than the quantity causing erythema will make the hair fall out, to return in five or six weeks. The falling begins three weeks after the exposure and is uniform. The quantity required for this purpose is known as the depilating dose. Greater dosage destroys the hair follicles completely.

The rays are employed in different quantities for different purposes, and these quantities are measured against the amount required to produce redness in three weeks, in other words against the erythema dose. In this country, for technical reasons which it is not necessary to discuss in this paper, this quantity is known as 1 Holzknecht unit, at a definite distance of the anode from the skin, termed the skin distance. The entire formula is designated by the symbol 1H s.d. I have suggested, out of deference for McKee who is the American pioneer in modern *x*-ray therapy of the skin, to substitute the letter

M for the letter H. The previous formula then would read 1M. Any part of 1M is a fractional dose; any multiple, a massive dose. Dosage is determined by a mathematical formula involving voltage, milliamperage, distance and time of exposure. The details may be omitted.

Fractional dosage, that is $\frac{1}{8}$ M to $\frac{1}{2}$ M is employed at stated intervals in the treatment of inflammatory processes. Massive dosage, that is $1\frac{1}{2}$ M to $2\frac{1}{2}$ M is employed in the treatment of malignant growths and exposures are not repeated in less than four to five weeks. Other special dosage will be mentioned in connection with the diseases about to be discussed. For the sake of clearness the conditions in which the *x*-rays are useful will now be individually mentioned, and brief reference will be made to their probable mode of operation in each condition. Properly speaking this should be done on the basis of the pathology of the lesion, but to do this would render the present paper too pretentious and too technical. In passing it might be stated that the conditions in which the *x*-rays produce the most brilliant and consistent results are in acne and in the rodent ulcer or basal celled epithelioma, and in producing temporary epilation in ringworm of the scalp. In addition to these numerous other dermatoses are amenable to treatment by the *x*-rays to a far higher degree than by any one other therapeutic measure. For the sake of proper emphasis the three conditions that preeminently stand out in their responsiveness to the *x*-ray will be taken up first.

Acne, better known as acne vulgaris, is a disease prevailing of puberty and adolescence, which rarely persists after maturity has been established. It is characterized by the presence in the pilosebaceous follicles of a plug, called the comedone which is composed of exfoliated follicular cuticle and the secretion of the follicle. The essential feature of the disease is the formation of these plugs. About them pustules form, provoked by the foreign body action of the plugs rendering the tissue susceptible to native staphylococci, secondary invaders which excite suppuration. The underlying mechanism must depend on the various biological factors operative in the drama of puberty.

Regarding puberty as the underlying pathogenic mechanism of acne the only cure is time. Disinfection may cure or diminish the pustules. Revulsives may diminish, and sometimes actually stop comedone formation. The therapeutic objective is the overcoming of comedone development. This objective can be attained more uniformly and precisely by means of the *x*-rays than otherwise. Their effect is produced in two ways, by stopping the hyperplasia in the follicles, and by diminishing the activity of the sebaceous glands. If the abnormalities of puberty could be controlled, this too would cure acne. Up to now all attempts in this direction have met with only partial success, while the *x*-rays, through altering the nature of the skin give the desired results in upwards of nine cases out of ten.

The treatment consists of weekly exposures of $\frac{1}{4}$ M applied at five different fixed points on the face. From twelve to twenty exposures are required, the average being about fifteen. General medical indications referable to alimentary and internal generative derangements must be recognized. In between five and ten percent of the cases the treatment fails or meets with only par-

tial success. In twenty-five percent of the cases there are more or less severe recurrences in anywhere from three months to a year, and sometimes not for two or three years. These can usually be controlled with three or four exposures. In brunettes a diffuse pigmentation is sometimes produced, and in blondes, freckling. This is transitory. It must be remembered that acne tends to cause pitting. The rapid recovery under *x*-ray treatment suddenly may force this pitting on the patient's notice, the patient thereupon fancying that the *x*-rays are to blame. Often too, between the fourth and eighth exposure pustulation is exaggerated. This is temporary and disappears automatically as the treatment goes on. While the *x*-rays are being used there should be no other local treatment since the irritation thereof in conjunction with the *x*-rays may lead to Roentgen dermatitis, of which there is otherwise no danger. In short, the *x*-rays afford a simple, precise and almost uniformly successful method of treating acne. Offsetting the expense of frequent visits to the physician is the fact that there are no prescriptions to be paid for, and no disagreeable local applications to be made at home.

Rodent ulcer is treated, when the *x*-rays are employed, by the use of a massive dose (2 to 2½M), repeated in a month. The best technic is to curette the growth under local anesthesia and then to apply the rays. In suitably selected cases the results are almost uniformly successful. A first to second degree dermatitis is usually provoked in the normal skin surrounding the growth, and the site of the growth usually continues as an ulceration for ten days to two weeks, whereupon it rapidly heals. The second irradiation need not exceed a dosage of 1½M.

It is important to understand that the *x*-rays do not constitute the only medium for the treatment of this condition. Excision with irradiation of the scar, or the use of radium, have their distinct place. Excision is probably the method of choice, but the laity objects to the knife, and the *x*-rays produce a more rapid effect than radium. What has been said of the rodent ulcer also applies to squamous cell growths, but to a far lesser degree. In these the main indication for the *x*-rays is when they are inaccessible to the knife. Growth of the mucous membranes are best treated surgically, followed by the application of radium or *x*-rays, subject to the site involved. Diathermy is often to be preferred to a cutting operation. The prognosis depends upon the nature of the growth, its size and duration. Growth in skin overlying cartilage, as on the ear or nose; or overlying bone, as on the bridge of the nose, or at the corners of the eyelids; or overlying a vital organ, as on the eyelids, if not responsive to one or two *x*-rays exposures should not be treated further by this means, but by a suitable surgical procedure. It is again to be emphasized that this is no partisan endorsement of the *x*-rays in the treatment of malignancy, but merely a description of one form of therapy applicable only in suitable cases, either alone or in conjunction with other methods of treatment.

In ringworm of the scalp the therapeutic value of the *x*-rays resides in their ability to produce temporary epilation in a dosage of 1 to 1¼M. The hair is clipped, and the scalp irradiated at five fixed points. In three weeks the hair falls uniformly, leaving the scalp bald. In three to six weeks more a new growth of hair begins. It is the falling out of the affected hairs that produces the cure. Occasionally there are recurrences, but these are rare. Favus can be similarly treated, as can be kerion also, but both of these conditions produce more or less extensive permanent baldness which cannot be overcome by the *x*-rays. Aside from these three important condi-

tions in which the *x*-rays appear to be an ideal therapeutic agent, there are many others in which their value is striking even compared with other good modes of treatment. These conditions come under the head of simple inflammations, chronic infections, and non-infectious granulomata.

Simple Inflammations

In simple inflammation are included groups of diseases represented by psoriasis, scaling exzema and the lichens. In instances in which psoriasis responds to the *x*-rays the result is brilliant and prompt. According to the size and thickness of the lesions ¼M to ½M is employed at intervals of a week to two weeks to each area. If involution does not begin to take place after the fourth application it is almost useless to persist. It is impossible to predict whether a case will be favorable or not. The only test is the actual use of the *x*-rays. General treatment must also be employed. Irritating local applications should not be used. In parapsoriasis, unless it be the forerunner of mycosis, the *x*-rays have no effect. In seborrhoea the story parallels that of psoriasis. The same is true of the scaling eczemas, particularly after the local cause has been ascertained and removed. In acute lichen planus the use of the *x*-rays is almost ideal both to produce rapid involution of the lesion and to overcome itching. The method of application is identical with that in psoriasis. In the more resistant forms of lichen planus the *x*-rays are less efficacious. In simple lichen, and in the lichenifications the rays are valuable but not consistently so. In lupus erythematosus, rosacea rays are contraindicated, and in prurigo the rays are of questionable value. When employed in any of the conditions mentioned, the fractional dose is used.

Chronic Infections

The use of the rays in ringworm of the scalp has been described. In similar infections of the nails they seem to have a certain value when the nail bed is involved. In dermatophytosis, a vesicular eruption favoring the hands, feet and groins, the *x*-rays are a valuable adjuvant to other local treatment during the scaling phase. In all of these conditions fractional doses are used.

In the various forms of skin tuberculosis, especially in lupus vulgaris, irradiation once a month with 1M often causes involution. The Finsen light, however, is infinitely better. In rhinoscleroma, where the outside of the nose is involved, from one to three exposures of 1M, made four weeks apart often produces brilliant results. In fact, no better method of treatment in this condition exists. In actinomycosis, sporotrichosis and blastomycosis, to say nothing of the chronic suppurative forms of ringworm, the *x*-rays are often of great value. In lepra and syphilis they are useless. In some of the so-called tuberculides, notably in erythema induratum they often are successfully used. In sycosis, whether due to fungi or bacteria, they have a certain value if employed in fractional dosage, and this also applies to localized furunculosis, unless diabetic in origin.

Non-Infectious Granulomata

This group of conditions includes mycosis, leucemia of the skin, and cutaneous Hodgkins' lesions. For the sake of convenience sarcoma may be mentioned in this connection, both the simple variety and Kaposi's form. In all of these conditions ¼M to ½M is used weekly for from four to eight exposures. In the first three conditions, not only do the lesions respond rapidly, but the itching seems to be controlled to a high degree. In these three, too, there is a pregranulomatous phase that is equally well controlled by irradiation.

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Observations and Management of Mitral Incompetency

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Insufficiency in the function of the mitral valves, often systematically expressed as regurgitation, is best termed incompetency, as a more accurate representation of disturbed function. It has been selected by the writer for the purpose of illustrating certain fundamental requisites necessary in all forms of valvular heart disease, and also because the mitral valve is the one most frequently involved, especially in children as the result of acute rheumatic fever, chorea, and the acute exanthemata. On the other hand while mitral incompetency comprises over one half of the cases of valvular heart disease, it is not nearly as serious as aortic incompetency, in which sudden death is considerably more frequent.

As valvular defects are not demonstrable during the acute stage produced by the etiological factor, the treatment really should be anticipated by preventing the lesions as far as possible, or at least reducing their extent during the acute inflammatory stages. This is particularly applicable in acute rheumatic fever, the acute infectious diseases in children, and the occurrence of what so often is erroneously and comfortably designated as "growing pains." The acute endocarditis is usually the beginning of destructive changes in the valves, followed by contraction and consequent permanent changes in structure, involving even the chordae tendineae themselves. Rest is the keynote in this stage, and cardiac therapy, such as digitalis, etc., should not be employed, any more than passive motion would be used in an acutely inflamed joint, or massage in an acute neuritis. While we cannot put the heart in a splint in the sense that we can a broken leg, we can remove from it such elements of physical and mental fatigue that cause imposition of increased activity and functional responsibility, and this keystone in the arch of cardiovascular therapy, is likewise applicable in mitral incompetency as in decompensation from other valvular defects.

The decreased call upon the heart when the patient is in the recumbent position renders this imperative, and where possible muscular initiative should be reduced to a minimum, even to changing his position, feeding, bedpan, etc.; only then can we advantageously draw upon that great reserve power so eminently possessed by the cardiac musculature.

The amount of regurgitation of blood due to the incompetency depends first, upon the amount of initial organic destruction, and secondly upon the amount of compensatory hypertrophy. Where the latter has been established the defect is usually first discovered during a routine examination for other complaints, or accidentally during an examination for entrance into military service, for life insurance, or for certificates of health. And yet we have all discovered a great amount of regurgitation upon physical examination in which the hypertrophy has so compensated the defect as to leave the patient unconscious of his condition. Surprising as it would seem, during this stage of complete compensation the greatest muscular exertion and fatigue are tolerated with apparent impunity. This emphasizes the folly of meddling therapeutics during the stage of perfect compensation. In certain combinations of valvular defects, one defect may assist in compensating for another, which is not infrequently found in combined mitral stenosis and incompetency, the reflux of the blood being diminished by reason of the narrowed orifice. Notwithstanding favorable compensatory conditions in the valves

of so intricate a mechanism, it is generally conceded that it is upon the driving power of the pump that the outlook depends. The compensatory hypertrophy and restoration of compensation may under judicious treatment be repeatedly reestablished, as long as the pathological process affecting the valves has not progressed far enough to cause rupture of a segment, in which case there is usually a rapidly fatal termination.

As during this stage therapeutic aggression is contraindicated, so disturbance of compensation is the signal for interference. There is only one drug that stands out as a beacon light, one that has been tried and not found wanting when accompanied, and then only, by intelligent administration, and that is—digitalis, the use and abuse of which could fill volumes. As a remarkable prognostication of this fact, the memorable article of Withering, the pioneer of digitalis, written in 1785, and entitled "Account of the Fox glove" was upon the abuse of the drug.

There is probably no form of valvular heart disease in which the digitalis is more valuable than in that affecting the mitral valve. Upon its administration the ventricle is invigorated, the systole made more efficient, the diastole prolonged, and the heart better nourished. The rhythm is regulated, the pulse slowed, and the stimulating effect upon the pneumogastric nerve restores the equilibrium of the cardiac cycle. In short the intelligent use of this valuable drug is one of the chief underlying principles in the treatment of valvular heart disease.

While opinions may vary as to the dosage there are certain cardinal points which clinical experience has substantiated. In my experience digitalis is indicated in all forms of cardiac decompensation, the chief contraindication being not to use it until then. In some cases it may have to be withdrawn for a time if the muscular pathways of the bundle of His are too powerfully influenced which is probably the result of over-medication rather than toxicity. This is not often required, but when so has probably been the basis for establishing the so-called "cumulative" effect of the drug.

The evolution of the various pharmaceutical preparations of digitalis has an interesting analogy in the development of instruments of warfare from their crude states to the modern firearm, the precision and accuracy of which have been gradual but efficient. The difficulty in establishing a uniform and potent digitalis preparation has been mainly due to the variation in the constituent parts of the drug, which vary in different specimens of the plant, and result in varied proportions of the glucosides, digitoxin being one, if not the most important, and certainly the most potent. Physiologically tested products therefore offer the best means of estimating the therapeutic efficiency of digitalis, which is one of the drugs whose action is almost the same upon the hearts of frogs and mammalia; and yet the therapeutic dose is in almost all cases reflected by its physiological action upon the symptoms, and need never be pushed to the point of saturation. While digitoxin is a very powerful ingredient in digitalis preparations, they need no more be pushed to the point of toxicity than other powerful agents, such as strychnin, morphin, arsenic, or hydrocyanic acid. The claim by some that digitalis is an irritant to the heart is a therapeutic misnomer, not substantiated by the bulk of clinical experience. Wholly only a specific

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Inanition—Anemia

An Unusual Case of Pernicious Nausea and Vomiting Complicating Gastric Ulcer, Syphilitic in Origin, Terminating Fatally.*

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According to Osler, pernicious nausea and vomiting, without any other demonstrable pathology, in 90 per cent of the cases, is directly due to anemia, either primary or secondary. The entity accompanies many pathological conditions. It is extremely difficult to accurately differentiate between them and to definitely point to a clinical condition, as the etiological factor. Statistics, by Boas, give the following, as the most frequent causes of pernicious nausea and vomiting:

(1) *Nausea Nervosa*, an entirely functional condition, always due to hysteria or neurasthenia. It occurs in anemic and chlorotic females, in 80 per cent of cases. In a series of 1592 cases of pernicious nausea and vomiting, gathered by Boas, nausea nervosa constituted 2.5 per cent of the total. In this type, the nausea may either be intermittent or continuous, occurring at any time of the day or night, and bearing no relation to the ingestion of food. It may persist for days or months, constituting the chief link in a vicious circle. The gastric contents are usually normal, the only variation occurring in those rare cases (about .5 per cent of the total series), where slight hyperacidity exists.

(2) *Gastritis* (Boas) with accompanying persistent nausea and vomiting.

- (a) Acute Gastritis
- (b) Chronic Gastritis
- (c) Toxic Gastritis

The differential diagnosis between the various types of nausea and vomiting, due to gastritis, is ordinarily easier than that, accompanying nausea nervosa, because the definite pathological findings, which always occur in an inflammatory process, make the diagnosis simple.

(3) *Splanchnoptosis* (Boas) is a state in which nausea and vomiting occurs in from .8 per cent to 14 per cent of the total number of cases (statistics of Einhorn and Bassler). This condition can be ruled out by the use of the fluoroscope. When it exists, it is the definite cause of a certain number of cases of pernicious nausea and vomiting, that continue uninterruptedly, until death ensues, or until relief is obtained.

(4) *Appendicitis*, in both its acute and chronic catarrhal forms, is such a well known cause of nausea and vomiting, that it need hardly be discussed. Tom Brown of John Hopkins reported a case in 1904, admitted to his ward, practically in extremis. The patient, a woman, age 46, had vomited continuously, day and night, for 36 days, had been unable to retain food, in any form. She complained of no pain, whatever. Death ensued, 48 hours after her admission to the hospital. Autopsy revealed no pathology, except a so-called "chronic catarrhal appendix."

(5) *Nervous Gastralgia* (Boas) is mentioned by only two authorities, Osler and Einhorn, and given scant consideration by either, as a cause of pernicious nausea and vomiting. Osler also describes, what he terms "phlegmonous gastritis," as a cause of pernicious vomiting. No other references in our available literature can be found to this last named condition.

(6) *Syphilis*, attacking the gastric mucosa, may cause irritation of the splanchnic nerves, giving rise to persistent nausea, which may persist, until the cause is removed. Oftentimes, vomiting has existed over such a

prolonged period of time, that the patient has become too anemic to either resist the lues or to be influenced by any form of medication. The following case, taken from the records of the clinic, illustrates this point:

CASE No. 577

History, obtained from Referring Physician:—

"As soon as patient is able to make the trip to Louisville, I shall refer to you a lady, age 28, under my care, past two years. Wassermann, 4 plus; I am unable to get a reduction in the Wassermann; patient has received eight intravenous neosalvarsans and sixty intramuscular mercurys. Vomiting attacks last from three to five weeks; sometimes there is an intermission of two or three months between attacks; more frequently, the attacks recur every two or three weeks, during which time medication is of no avail, except morphin (Gr. $\frac{1}{4}$) which she requires, two or three times during the day. Patient has lost thirty to thirty-five pounds, recently."

Symptoms Briefly:

- (1) Attacks of nausea and vomiting, after taking food or drink, occur every three or four weeks, and last from one to two weeks.
- (2) Cramping pain in epigastrium and right upper quadrant.
- (3) "Drawing sensation" in left abdomen.
- (4) Loss of 45 to 50 pounds, past two years.
- (5) No energy.

Present Illness:—First noticed about two years ago; first symptom burning in epigastrium—eating would relieve it. Later, an attack of vomiting developed, which persisted fourteen days; since that time, has had numerous recurrences of such attacks, gradually becoming worse.

Past History:—Usual childhood diseases, uncomplicated; always been healthy.

Family History:—Father dead, 72, senility. Mother living, 52, has "stomach trouble"; five sisters and one brother, all in good health.

Habits:—Good; no alcohol; moderate eater; very little exercise.

Additional Data:—No cough; no sputum; no oedema; dyspnoea on exertion; digestion poor, with frequent belching, bloating, nausea, vomiting; no fever, no chills, no sweats; no headaches; no emotional disturbances.

General Physical Examination

Patient is a fairly well developed, emaciated white female, age 28; weight 95 pounds, usual 135 to 140, best 146 pounds two years ago; height 5 feet 2 inches; skin dry; visible mucous membranes slightly pale; teeth fairly good; gums irritated; tonsils enlarged; tongue slightly coated, no tremor; superficial glands not enlarged.

Nervous System:—Negative.

Mentality:—Good.

Joints and Osseous System:—Negative.

Muscular System:—Flabby.

Reflexes:—Patella tendon, Rhombberg and pupillary normal.

Special Examinations

Dental Department:—Reports complete set of teeth, all vital; superior right first molar has cavity; gums are irritated; prophylaxis needed.

Eye, Ear, Nose and Throat Department:—Eyes:—Vision in each eye, 20/30; there is a small opaque spot on the left cornea. Ears:—Negative.

Nose:—The middle right turbinate is hypertrophied.

Throat:—Tonsils hypertrophied; their removal is indicated.

Thorax (Physical):—Emaciation is very noticeable; slight depressions above and below clavicles; bony parts are prominent; respiration shallow.

Lungs:—Resonance over both apices, slightly impaired, especially over the right; breath sounds prolonged and harsh over upper right lobe; no rales heard.

Heart:—Rate accelerated; sounds, force and rhythm good.

Thyroid Gland:—Not enlarged; apparently of normal function.

Abdomen (Physical):—Walls thin; musculature poor; no irregularities, no apparent masses; epigastrium and right upper quadrant are on guard, not very sensitive; the right rectus muscle is on guard, though no especial sensitiveness is shown; left lower quadrant sensitive.

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* From the Records of The Solomon Clinic. Notes by Dr. Solomon in Collaboration with Dr. C. S. Goodman.

Infection from City Street Dust Through Lips and Mouth

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A letter written to the writer expresses the opinion that the menace of floating and flying dust upon public health has been overrated. Quite true; the dangers to health have been meretriciously exaggerated; likewise they have been underrated—all due to a paucity of definite knowledge on the subject. A study of the infectious character of dust comes within the domain of the bacteriologist and not within that of the meteorologist. Nevertheless, unless he makes himself blind to the subject the meteorologist cannot escape the ubiquitous micro-organisms of the floating dust of the air. They spring up out of the floor to beat him in the face.

A most comprehensive report covering most of western Europe and the United States, compiled by C. E. A. Winslow and I. J. Kligler, under the direction of the American Museum of Natural History, is published in the *American Journal of Public Health*, vol. 2, No. 9. A popular and most interesting volume, *Dust and Its Dangers*, T. M. Prudden, is published by Putnam's. These publications afford authoritative information concerning the presence of pathogenic micro-organisms in city street dust.

One determination noted by Dr. Prudden has been published in *MEDICAL TIMES*. It is worth repeating many times. Petri dishes plated with a culture medium were exposed for five minutes each in different parts of New York City. Each active micro-organism developed into a colony and the colonies were counted. Here is the result of the count:

A private house	34 colonies
A dry goods store	199 "
Union Square	214 "
Broadway at 35th St.....	941 "
Where street sweepers worked.....	5810 "

The simplicity of the determination might not be acceptable to an academic paralytic but it is intelligible both to professional and to layman; and no other test has been more conclusive.

The particles of dust in the air visible without aid to the eye rarely exceed a few thousand per cubic inch. The particles requiring a one-sixth objective may number twenty thousand; the particles which a high power of the microscope cannot resolve may be more than three times that number. These figures are approximates, but the Aitkin tests show that they are not far out of the way as maxima. So far as minima are concerned, even the low limit possesses its dangers.

The list of micro-organisms found in city street dust, floating or wind-swept, does not comprise many kinds, and only a few are spore-bearing. Of these the micro-organisms of anthrax and *titanus* are most in importance, but ordinarily they are few and far between. In the case of *B. anthrax* the cases of infection due to dust shaken from hair, or from hides, are few in number compared with infection from lather brushes. *B. diphtheriae* are not often present in settled dust; it is doubtful if they are present in floating dust. Doubtless, too, other organisms are present in the air during dusty days, and these are responsible for various throat and nose ailments. Indeed, it is a case where suspicion is certainty, but without positive knowledge of anything but the mere fact.

Concerning the presence of *B. tuberculosis*, *B. coli*, and certain aurococci there can be no doubt; they are

almost omnipresent. Knowledge concerning them is so general that repetition of the facts is not necessary.

Methods and ways whereby *B. tuberculosis* and other pathogenes became infectious have been many times described. Here is one that impressed itself on the writer when it was discovered that a silk handkerchief could become very dirty without showing its condition. For this reason a white linen handkerchief is much the better. The stain, after wiping the lips and the nostrils, is very much in evidence. The stain is dust—or, at least, foreign matter—which does not belong upon the mucous membrane of the human body. The nose is fairly capable of sterilizing the micro-organisms which enter it from normal air. The lips have this property to a feeble degree only, or perhaps not at all. An examination of the stains on the handkerchief showed roughly the dust particles varied from a few hundred to several thousand per square inch of surface stained. Such measurements, however, are qualitative rather than quantitative.

The habit of wiping the lips with the tongue is well nigh universal; and doubtless humanity will continue to practise the practice. Apparently Dame Nature constructed oral anatomy with that view. Humanity has been cleaning the lips with the tongue these many years. Doubtless, humanity will continue the practice. Nevertheless the use of a white handkerchief for the purpose during very dusty days will harm no one. Perhaps Dame Nature did not take into consideration the fact that vehicular and pedestrian travel, together with the congestion of population, would eventually create a street dust containing pathogenes at the rate of from fifty to one hundred per cubic foot of air. Had she been possessed of the wisdom of 20th century politicians a highly effective plan would have provided a constitutional amendment with an enforcement bureau in each state. Nevertheless, it is wholly within the rights of humanity to clean the lips with a handkerchief instead of the tongue when the dust and bacteriological content of the air demands.

Urinary Elimination of Arsenical Compounds

Careful study of about 5,000 analyses leads to the following conclusions on the part of Leopying and Feroid:

Eparseno and glucarsenan are too diffusible to be employed systematically for intravenous injection.

All the salts studied are well suited to intramuscular use.

The doses being equal, eparseno is the most effective given by mouth; glucarsenan and sulfarsenol come next. A much larger dose of stovarsol must be used.

"Without pretending to find in the intramuscular method an ideal method of administering the arsenobenzenes, and keeping strictly to facts learned by experiments, it is evident that this method avoids the two great disadvantages of massive intravenous injection. Elimination begins slowly, although not sufficiently so to provoke retention in the organism, there is consequently the maximum spirillicidal effect of the salt injected. But above all, the impregnation is much slower, more continuous and more complete than can be obtained by intravenous injection."

"A general rule is easily deduced from our experiences, whatever the salt employed, and the route chosen. It is the superiority of fractional doses over the massive dose."

"Let us remember in closing the advantages of the fractional dose, the great aid which friction or ingestion can offer under certain circumstances, and above all the obligation to submit all persons intolerant to the arsenobenzenes to a careful analysis of their physiologic balance, particularly studying their hepatic function and urinary elimination.—(*Ann. des mal. ven.*, Jan. and Feb., 1923.)

Home and the Community Curriculum

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"In the 'good old days', the young 'doctor' got a considerable part of his professional training from an experienced one. As the student went about with the 'professor', every case seen, had a vital home setting and environment. There was an individual character in every field or parish which the man who long served it came to know, and to understand how to meet it. The apprentice going the rounds with his preceptor or helping him to keep the office during the period of apprenticeship got a well balanced acquaintanceship with the ordinary kinds of medical practice, saw a goodly range of the ills, affections and mishaps to which the mortal may become a victim. Humanity was given constantly a concrete interpretation. The mass did not obscure the individual. Throughout a long professional experience in the average parish of those days, there was ample opportunity for the keen physician to make constructive deductions. The home and the field furnished a laboratory both for special and general teaching.

We consider those days pretty lame lacking our modern means for the study of gross pathology and for surgical efficiency. The schooling, however, in mental and social pathology then suggests a practical form of training worth considering at this time. Easy going methods like myths and folk-lore carried forward truths in spite of the fallible vehicles and agents. In this age, preeminently one of manufacturing, artificial calipering, instrumentation for registration and graphs, we are tempted to use substitutes for finely grained native faculties, whereas the exigencies and the limitations of the past afforded them then a degree of unusual training. Instruments, tools and all kinds of recording apparatus make such tangible or plausible showings and appeals as basic to scientific knowledge, that it seems as though there might be an increasing element of error from the neglect of instinctive and intuitive faculties. If native sensory factors are not given their normal field of exercise, have not the opportunities for improving and developing their perceptive strength and acuteness, they deteriorate. If talents are hid in the ground, some one other than him to whom the talent is given will profit therefrom.

The most obvious advances in science today as always seem to govern the social body. The specialist must go to this city to perfect himself and people must live in the city to have the benefit of the specialist and his protection. The man in the country must of necessity be a jack-at-all-trades and sentiment seems set and steered as though he could not be very good at any. As a physician, he cannot buck the rigors of winter, compass the quantity of work which sometimes imposes itself upon him, and do delicate surgery. He cannot afford to carry a heavy overhead of equipment in his general practice. (The chances are that the public more and more will be aroused so as to extend hospital and specialized service further into the back-woods). The physician can now at least be as well equipped with the externals as was the doctor of two generations ago. He has a chance to study human, social and community psychology which his brother in the city could well covet. If he must of necessity send all but minor ailments and surgical cases to the hospital for adequate care and treatment, he has still left an opportunity for practice in a way that will round out a capable brain, and stimulate the best in the mind and in sensory perceptions.

A city school teacher is essentially a specialist teaching children of one age, grade, class or in one subject. The country school teacher may have all ages from 5 to 15 and teaches all subjects except the higher specialties. She leads besides in town affairs. Too often, the country towns lack educated and intelligent leadership. With such a lack there must develop conditions of intellectual, social, economic, political or governmental anemia. To diagnose such pathological conditions, to minister to community ailments as well as individual ones requires the bringing into play all the mental, moral and physical reserves of a trained man. Just as he must have the benefit of specialists at a hospital, so he must get into touch with specialists in agricultural, educational, county and state affairs. The town arteries (roads) need attention. The heart and lungs, organs of digestion and assimilation, brain, nerve emotional centres, muscle and limbs, whether these be business interests, crops, schools, library, church or what not need skilled diagnosis and treatment. Individual health is related to community welfare. As in the past the physician was a tower of strength in a small community, so today he has a greater opportunity to not only serve the obvious physical ailments which modern science so much controls but also to be a many sided health agent and health engineer doing research work, controlling all the insidious germs of a mental or moral character which undermine individual and community well being.

Are our medical institutions to furnish workers for a field from the ranks of those who have no means of acquaintanceship with its needs and life? Can we by means of correspondence, and extension, education, together with the old line apprenticeship and a supplement of academic, clinical, and hospital teaching and service, develop a professional product to meet a field suffering more and more of neglect? We know that in the human body there cannot be engorgement in the heart and congestion in the brain without anemia and depletion in the extremities. In the state or social body, the metropolis cannot absorb the life and vigor without peril to the length of its days and functioning power.

The true curriculum must include normal settings. It must see more of life in natural relations, even though it be difficult to adapt our modern scientific art and machinery to the situations presented. We must not forget that quality of cell consciousness—the ability to feel, gauge, discern and perhaps judge, which exists wherever life continues, whether in the periphery of the human unit or that of the state or social unit. Cerebral and cerebellar activities have work enough in properly filing, indexing and in the finer and higher functions registering, measuring and solving problems of administration. Every kind of higher institution has its place if it conforms to the natural laws of life and growth. The promotion of and the ease and facility with which mutually reciprocal actions and reactions are furthered is an index of health and real strength. The home and the community furnished an important part of the laboratory for study 50 years ago and it would seem today, with the accessories for improved vision, we should learn more from them.

Müller's ducts, fibres, muscle, etc., are named for Johannes Peter Müller (1801-1858), German physiologist and comparative anatomist.—(*Med. Facts.*)

RECENT DEVELOPMENTS IN OUR KNOWLEDGE OF THE INTERNAL SECRETIONS

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In all the plants and animals the processes of metabolism result in the formation of certain substances. In the unicellular forms the substances aid in digestion or in the formation of cilia, flagellae, shells or cysts or are simply wastes. In the multicellular organisms the materials may be used in the cell itself or in distant cells or organs, or they may become wastes.

Johannes Müller considered that secretion consists of two phases, the production of certain materials, and the casting out of these materials either inside the body or outside of it.

According to Swale Vincent, the old idea of calling the production of materials "secretion" and the casting out "excretion", must be laid aside, as we must conclude that the term excretion can apply only to the metabolic products of no service to the body.

A gland may be defined as a structure consisting of one or more cells specialized to form a product, discharged upon some epithelial surface.

Glands have been classified as *ductless* or with ducts according to their equipment with or lack of a conveying tube or duct.

The earlier work with organs of internal secretion seemed to indicate that they were all ductless, but we now have come to the knowledge that many of the glands with other secretions, have most important additional internal secretions.

Endosecretory glands with a duct;—testis, ovary, liver, pancreas, kidney.

Endosecretory glands without a duct;—thymus, thyroid, parathyroid, suprarenal, pineal, pituitary, spleen.

As the location of the organs of internal secretion with ducts is well known to all, we may briefly describe the ductless glands.

The thyroids are situated in the neck and consist of two lobes united by an isthmus. The parathyroids are situated lateral to the thyroids.

The thymus is a unilateral organ situated just anterior to the heart. It becomes single in the child soon after birth. It grows until the age of fourteen or fifteen and then the glandular structure is lost and the organ becomes nonfunctional, although sometimes persistent until the age of fifty or sixty years.

The suprarenals are organs situated in man just above the kidneys. Almost as large as the kidneys in the embryo, they decrease to the size of a large pea in the child.

The pineal body is situated under the cerebral hemispheres and just anterior to the cerebellum of the brain.

The pituitary body consists of two parts, an anterior glandular lobe and a posterior nervous lobe. It is situated just posterior to the optic chiasma, the point of entrance of the optic nerves to the ventral portion of the brain.

Kohn has illustrated the processes of external and internal secretion by the liver. The liver manufactures bile and sends it down the bile ducts to the duodenum. This is an *external secretion*. When we obstruct the bile ducts, the secretion goes on in the cells of the liver and the bile is conducted into the blood as an *internal secretion*.

From the fact that the internal secretions act as messengers of stimulation, Starling suggested the name *hormone* from the Greek word *hormon* meaning excite or arouse. It is believed that health consists in being in a state of hormonal equilibrium.

Endosecretory Glands with a Duct. Testis.

In addition to the production of sperms as an external secretion, the testes furnish an internal secretion which produces the male secondary sex characters such as a beard and a deep voice. In the male castrated before puberty, the characteristic superciliary ridges are undeveloped and the pelvis and larynx are infantile. The voice is high pitched and the beard is sparse. The bones are long and slender and ossification is retarded. The individuals may or may not become fat.

In cases of precocious puberty, the beard grows rapidly and the bones ossify early and are short. Nussbaum has shown for frogs and Steinach for rats and guinea pigs that in castrated animals, the transplantation of testicular tissue will cause a reappearance of the male secondary sex characters. Injections of extracts of the testis produce similar results.

Brown Sequard found that spermin increased his mental and physical efficiency at the age of 72. Although it is acknowledged that some of the effect in this case was due to suggestion, it is probable that some benefit was derived from the extract. Poehl, Zoeth and Pregel have demonstrated that spermin lessens fatigue sensations and causes an increase in the amount of muscular work that can be accomplished. (Vincent, p. 67.)

Transplantation of the testis into a spayed female guinea pig has been found by Steinach to induce masculinization in behavior as well as in the secondary sex characters. G. F. Lydston and others have successfully transplanted testes in man, and report increased vigor and youthfulness. Considerable publicity has been given to some of the operations performed, but little has been said about the sudden deaths that have resulted from the overstimulation of the whole body that has resulted from endocrine imbalance.

Ovary

Fortunately there is little information regarding the effects of removal of the ovaries in the very young human female, but the mistaken zeal of surgeons has given a large mass of clinical data regarding the profoundly serious effects of ovariectomy in the adult woman. Premature menopause causes serious disturbances of the circulatory and nervous systems.

In the fowl, removal of the ovary causes the bird to take on the plumage of the male. Apparently the ovary suppresses a latent male character in the female. There is also evidence that a similar case holds in mammals such as the guinea pig, rat and rabbit. It is a well known fact that after the operative removal of the ovaries, in the human female the voice deepens and the face becomes hirsute. In women who have not borne children this condition frequently arises after normal menopause.

In cases of precocious functioning of the ovary, the individuals are usually short. In early or normal menopause, the use of ovarian extracts, notable corpus luteum extract, are beneficial. Corpus luteum is also beneficial in epilepsy.

Considerable transplantation work has been done with the ovaries. Dr. Robert T. Morris won notice in 1906 by reporting a case of transplantation of the

ovary from a woman to another who had been completely ovariectomized. The subsequent pregnancy was probably due to incomplete removal of the original ovaries rather than to the successful attachment of the transplanted foreign ovary.

Castle, of Harvard, demonstrated in 1910 that the transplanted ovaries of guinea pigs would grow and function, and that the ovaries of a white guinea pig transplanted to the body of a black female, would produce young unaffected by the blood of the foster mother.

Steinach demonstrated in 1912 that it was possible to feminize castrated male guinea pigs by the transplantation of ovaries into their body cavities. In behavior and in secondary sex characters the feminized male became like normal females.

Liver

The liver secretes bile as an external secretion. Bile is not necessary to mammalian digestion, but it aids in the preparation of fats for digestion.

The liver also produces *glycogen*, a heat producing sugar and an important body food; and it transforms the harmful ammonia into harmless urea. Biedl called this a negative internal secretion.

Pancreas

The external secretion of the pancreas is of great importance in digestion since it contains the enzymes trypsin, amylase and steapsin, which act respectively upon proteins, carbohydrates and fats.

The internal secretion, pancreatin, prevents the production of an abnormal amount of glycogen and resultant diabetes. If one-fifth of the pancreas is left in the body it is sufficient to prevent diabetes. It has been shown by Minkowski that diabetes caused by the removal of the pancreas can be checked by the grafting of pancreas tissue.

Diabetes, the specific deficiency of the power of assimilating food of a carbohydrate nature, is due to a diminished functional activity of the Islands of Langerhans of the pancreas. The glucose is permitted to increase in the blood, and the excess overflows through the kidneys, producing glycosuria or diabetes mellitus.

Banting of Toronto presented at the December meetings of the Canadian A. A. S. in 1922, evidence that his "Insulin" the alcoholic extract from the islands of Langerhans of the pancreas of fetal calves of less than five months development, was specific for diabetes. The hormone is destroyed by high temperatures and in strong acid media, but not affected by trichloroacetic acid, used as a preservative.

J. R. Murlin has secured glucopyrin prepared in aqueous medium. It is non-dialyzable through vegetable parchment, not precipitated by most of ordinary reagents employed for precipitation of protein and will withstand boiling for a period of 5 minutes in a N/10 acid medium.

These substances are successful because the active principle is retained whereas in the old method of ligating ducts for 10 weeks to allow degeneration of acini, time was lost and the quantity limited.

Pancreatectomy (total ablation) has been followed by restoration of normal blood sugar content (1.2% to 1.0% sugar) after the animal, dog, had lived for 70 days without any pancreas, being treated with insulin in trichloroacetic acid.

Kidney

Besides the external secretion or excretion, urine, the kidney secretes a substance that causes rise in

temperature and quickening of respiration accompanied by increased blood pressure. Cases have been reported in which "nephritin" has benefited an inflammatory condition of the kidneys.

Endosecretory Glands without a Duct Thyroid

The thyroid glands produce a secretion that affects the development of the body and the functioning of the reproductive organs. The thyroids contain 10 times as much iodine as any other organ in the body. They stimulate metabolism, particularly the metabolism of calcium.

Gudernatsch found that tadpoles fed with thyroids developed rapidly into small toads. His experiments have been repeated by several investigators with complete success.

Diseased thyroids may secrete too much or too little. In the case of hypersecretion, either goitre, or the extremely serious exophthalmic goitre, results. Goitre is an enlargement of the thyroids which appears in many young women just before the ovaries have become established in their function. In many cases it disappears in a short time, but in the Great Lakes Basin of this country, it sometimes persists to middle age and causes serious trouble.

In some, goitre seems to be caused by disturbance in the internal secretion of another organ; in other cases it has been attributed to some substance transmitted to man through drinking water. It is believed that lack of sufficient iodine in the food and water predisposes to ordinary goitre. It is also true that blows on the thyroids may induce hypertrophy.

Exophthalmic goitre is an extremely serious disease. In Graves' disease, some of the symptoms are accelerated and irregular pulse (100-180), abnormally great appetite, moist skin, insomnia, protrusion of the eyeballs and incomplete and infrequent winking. Other symptoms are diarrhoea, shallow breathing and rapid loss of weight.

There are mental disturbances such as hallucinations, mania or melancholia.

When the thyroids are removed in young mammals, the bones do not grow long but thicken. The brain is poorly developed and the gonads are undeveloped.

The diseases produced by insufficient thyroid secretion are cretinism, myxodema, and cachexia strumipriva.

Endemic cretinism is marked by the atrophy of the thyroid, very low mentality and a dwarfed and frequently misshapen body. Cretins are frequently deaf mutes.

Myxodema (mucus-fat) is characterized by slow regular pulse, thick, wrinkled skin, drowsiness, constant feeling of cold, retarded bone growth, brittle teeth and great increase in body weight. Metabolism is very slow. The hair becomes thin and in some cases the skin becomes dry, brown and scaly. In the later stages of the disease perspiration may be entirely absent.

Cachexia strumipriva (Cachexia—a bad habit) is a condition very similar to myxodema and is produced by extirpation or arrested function of the thyroids. The symptoms are those of myxodema. The disease is also called operative myxodema.

In the treatment of disturbances of the thyroid function extracts of the thyroid gland have been used successfully for many years. Remarkable results have been obtained in the case of cretinous and

myxedemic patients. Thyroxin, a discovery of Dr. Kendall of the Mayo Clinic, Rochester, Minn., is a synthetic thyroid and is used with much success.

For excessive secretion it has been found that rest, abundant food, a mountain climate, x-ray treatment and partial extirpation of the thyroids are all beneficial. Recently potassium iodid has been administered to students in the schools of Ohio, West Virginia and Western Pennsylvania, with most gratifying results.

The common use of thyroid tablets to reduce flesh is unwise. One man reported by Nottshaft took 1000 thyroid tablets in 5 weeks and developed the symptoms of exophthalmic goitre. His symptoms did not entirely disappear for 10 months.

Carlson has demonstrated individual idiosyncrasy in the reactions of animals to thyroid dosage. He fed sheep thyroid to pigeons, hens, ducks, rats, guinea-pigs, rabbits, dogs, foxes, monkeys and to himself. In an attempt to determine the lethal dose for various animals he discovered that much more of the drug was needed for some individuals than for others. He killed all of his subjects and records that he did not meet classes for three days on account of the illness induced by dosing himself.

Parathyroids

The parathyroids are intimately associated with the thyroids. If the parathyroids and the thyroids are both removed, death follows. If the thyroids are removed and the parathyroids left, death is delayed. Removal of the parathyroids causes a condition known as tetany, in which certain groups of muscles are cramped and contract spasmodically. The parathyroids influence sugar metabolism and in the digestion of proteins, nitrogen in the form of ammonia is greatly increased. If the parathyroids are removed, there results a decrease in calcium metabolism, the hair falls out and the teeth decalcify, while protein metabolism is greatly increased, and sugar is stored in large quantities.

Thymus

The development of the thymus is closely connected with the functioning of the reproductive organs and the thyroids. The thymus grows until puberty when it begins to degenerate as a gland, and also decreases in size.

Paton found that the thymus of castrated cattle was retained and was apparently functional. Recently S. J. Morris of West Virginia University, in examining the subjects in his dissecting room, found that many possessed persistent thymus. Analysis of the records showed that the majority of these bodies were of criminals. This can be correlated with the probable derangement of the hormones normally coming from the testes, and is extremely interesting in view of the observations of Paton.

Removal of the thymus decreases calcium metabolism and reduces the absorption in part of the large intestine. The bones become soft, the muscles degenerate and the gonads develop early. In castrated animals the thymus is large.

Gudernatsch in experiments with tadpoles, found that feeding with thymus apparently caused them to grow large and fail to metamorphose. The work of Uhlenhuth, however, indicates that this retardation of metamorphosis was not specifically due to the thymus.

Thymus extract causes a fall in blood pressure and an accelerated heart beat. So-called "thymus death"

is explained by many physicians as due to mechanical pressure on the trachea, but believed by others to be due to an excessive internal secretion.

Numerous cases have been reported in which thymus extract benefited goitre. It has also been used successfully in cases of rheumatoid arthritis, which is a deforming inflammation of the joints.

Suprarenals

If the suprarenals are diseased a peculiar pigmentation of the skin accompanied by muscular weakness ensues. The blood pressure is usually low and the temperature is subnormal. The sugar content of the blood is low. This is called Addison's disease.

Removal of the suprarenals causes death in a few hours. Excessive adrenal secretion produces very high blood pressure.

The excessively masculine man with large superciliary ridges and coarse hair, who is apparently afraid of nothing, is an adrenal individual. Likewise the mannish woman, who is firmly convinced that she was born to regulate the affairs of the universe from a masculine angle, and who prides herself on her likeness to man in thought, conduct and dress, may not be a victim of reduced ovarian secretion so much as she is dominated by excessive adrenal secretion.

Pineal Body. (Epiphysis)

In cases of pineal tumor, causing deficient secretion, there is a tendency to obesity and individuals may be sexually precocious with premature ossification of the bones. Pineal extract has been administered to cases of retarded mental development, with reports of gratifying improvement.

Pituitary Body. (Hypophysis.)

The pituitary has two lobes, an anterior one and a posterior one, each with distinct functions.

Cushing has noted that the extirpation of a part of the anterior lobe induces atrophy of the gonads with a tendency to obesity, and hairlessness.

The posterior lobe appears to be the more active, and its extracts are similar in physiological effect to those from the whole organ. There is considerable evidence that the active substance stimulates the thyroid glands.

In cases of increased pituitary secretion, gigantism and acromegaly may result. Acromegaly is characterized by the overdevelopment of the bones of the hands and feet and the enlargement of the nose and lower jaw, producing the nut-cracker like face immortalized by the London *Punch* and by the once popular "Punch and Judy" shows.

Pituitrin raises blood pressure and keeps it raised better than does adrenalin and is used in obstetrics to a large extent.

Spleen

The spleen acts on proteid wastes in the blood and forms them into urea.

Interrelations of the Organs of Internal Secretion

The thyroid apparently stimulates the adrenals. Deficiency in the secretion of the thyroid induces increased activity of the pituitary. The thyroids have a marked effect upon the gonads. The thymus and the thyroids are frequently associated in a condition of hypertrophy.

The pituitary and the thyroids are apparently related to such an extent that a deficiency in one leads to an hypertrophy in the other. The pituitary exerts a stimulating effect upon the gonads. There is little evidence that the pituitary influences the secretion of either adrenals or pancreas.

There is unquestionably a close relationship between the adrenals and the gonads, and some evidence for the actual determination of sex by adrenal secretion. That the defective functioning of the adrenals may result in hypertrophy of the thymus is a notable fact. There is little evidence of influence of the adrenals on the pancreas, but considerable for the influence of the adrenals on the thyroids.

The gonads apparently check the hypertrophy of the pituitary, and have a depressing effect on the thymus, as it becomes degenerate after they assume normal function at puberty. The adrenal cortex tends to hypertrophy after castration. There is evidence of hypertrophy of the thyroids at puberty, and also periodically in the female.

The thymus hypertrophies in adrenal disease and in exophthalmic goitre, but the significance is not known. Though the gonads influence the thymus, it is difficult to prove that removal of the thymus has a direct influence on the gonads. The work of Paton and of Soli conflicts.

The thymus hypertrophies with the thyroids at times but there is little evidence that it affects them.

The pancreas is supposed by Falta to depress the thyroids. Licini found that pancreas extirpation resulted in a progressive hypertrophy of the thyroids.

The parathyroids are supposed by some investigators to be antagonistic to thyroids, adrenals and the pituitary on account of the depressing effects noted on carbohydrate metabolism, calcium metabolism and on blood pressure.

The pineal body is supposed to have an influence on the development of the gonads, although the evidence is far from conclusive.

The Effects of Fear, Anger, Worry and Joy on the Internal Secretions

Fright and anger disturb the equilibrium of the adrenal or suprarenal system. Sugar is liberated from the liver in large quantities. The blood is drawn from the abdominal viscera to the heart, lungs, brain and limbs.

It has been shown by Cannon and his students at Harvard that the injection of adrenalin into fatigued muscles will restore them in three minutes, while if left to normally restore themselves, they would not be rested in less than two hours.

Fear is associated with the instinct to run and anger with the instinct to fight. In either case the excessive action of the adrenals prepares the muscles to do their best. The action of the adrenals in driving blood to the heart, lungs and limbs causes a quicker clotting than ordinary and so wounds are more quickly healed whether they are received in the back or in the face. The clotting time is reduced from 5 minutes to one-half minute. As the blood leaves the viscera in cases of fear, anger and worry, it is unwise to eat too much during a period of excitement.

Dr. G. W. Crile, who proved that shock during operations may come to the patient's brain, even though he is anaesthetized, has given us an interesting theory regarding breakdowns.

According to Dr. Crile, excessive physical labor, athletics, worry, excessive proteid diet (too much meat) rage, fear, and insomnia so affect the organs of the body that the weakest ones succumb. He finds that these factors may cause an overstrained brain to give way, resulting in nervous exhaustion or even insanity; if the suprarenals can not stand the strain, diseases of the heart and bloodvessels result; if the liver is too much weakened, Bright's disease or diabetes may result. The reduction in efficiency of any one of the chain of the

"kinetic system" which consists of the brain, suprarenals, thyroids, muscles and liver, modifies the whole system.

Medical men in this country and in Europe have come to the conclusion that much of the hysteria and insanity present, is due to disordered gonads, that defective thyroids permit a child to have all sorts of children's diseases and that the adrenals govern the muscular tone and general efficiency of the individual.

It is readily seen then, that the endosecretory organs may influence the individual from before birth until death.

It must be admitted, however, that the present tendency to exaggerate the importance of the internal secretions and to attempt to utilize them in all sorts of diseases tends to result in injury to some patients, and to neglect on the part of the physician, who has temporarily gone into an endocrine spasm and believes that the extracts from these important glands constitute a cureall.

We must not neglect to mention the views of anthropologists regarding the importance of endosecretory organs on the production of races. According to Sir Arthur Keith of England, in an address before the British Association of Science delivered at Bournemouth (Nature, Vol. 104, No. 2611, pp. 301-305, November 13, 1919) the organs of internal secretion are responsible for certain distinct types of man.

"The Caucasian is strongly pituitary and suprarenal."

"The negro is defective in suprarenals."

"The Mongolian is defective in thyroid."

Again one must caution the scientists about going beyond evidence and ignoring the antagonistic and supplementary influences of the various glands.

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Action of Different Strains of Spirochetes on Nervous System of Rabbits

Plaut and Mulzer studied the neurotropy of different strains of spirochetes on rabbits. The work as well as the whole field of experimental syphilis of the nervous system is made easily accessible by Plaut's sub-occipital punctures of rabbits. The Wassermann reaction was always negative in rabbits' cerebrospinal fluid, but micromethods for the globulin test, cell counts, mastic and goldsol reactions gave good results. While one strain only exceptionally caused changes in the cerebrospinal fluid, another strain led to such changes almost regularly. Histologic findings confirmed these "clinical" results. They used also strains from the cortex of two cases of general paresis which caused in three generations of rabbits typical changes in the fluid without local changes at the place of inoculation. The histologic changes in these cases closely resembled those of human general paresis.—(Munch. med. Woch., December 22, 1922.)

THE CUTANEOUS TUBERCULIN REACTION IN CHILDHOOD

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Much has been said and more printed about the Von Pirquet cutaneous reaction for tuberculosis. However, a few practical deductions as to the value and significance of the test insofar as it relates to childhood, will not be amiss.

In early childhood, and particularly in infancy, the Von Pirquet cutaneous test is a distinct and reliable aid in the diagnosis of tuberculosis in the body, in contradistinction to adult life, where it is practically of no value. It is up to the age of two years that the reaction has the greatest significance, and then almost equally as well when positive as when negative. Under that age a positive reaction indicates the presence of a tuberculous disease. From two to four years a positive reaction shows the presence of a tuberculous infection, with a strong probability of the presence also of a tuberculous disease. If the latter be not present, the assumption at least is that the susceptibility toward the development of a tuberculous disease is very strong, and that sooner or later signs and symptoms of the disease will be evident, though not necessarily. The younger the child the greater the possibility of the transformation of a tuberculous infection into a tuberculous disease, and the older the child the less the possibility of the transformation. From the age of four till the age of twelve years, the value of a positive reaction as an indication of the presence of a tuberculous disease gradually diminishes, and its presence, while indicating a tuberculous infection and a susceptibility toward the development of the disease, does not indicate tuberculous disease with any degree of certainty. Between the ages of twelve and sixteen years, like in adults, a positive reaction does not by any means show a tuberculous disease. The reaction then takes on more and more the significance attached to it in adult life, which is, as we know, practically nil, and is of more practical aid when negative than when positive. In general, the reaction during childhood is more indicative and significant when negative. It then excludes the presence of tuberculous disease with a high degree of probability. This is particularly so in infancy. Exceptions to this rule are found in a few conditions where no reaction is obtained, in spite of the presence of a tuberculous disease. Among the most important of these are malnutrition with extreme emaciation, measles, and during the advanced stages of a generalized or local tuberculosis. Taking the period of childhood as a whole, a positive reaction shows a tuberculous infection, and if repeatedly negative its absence. The reaction is of more value as an indicator of the presence of a tuberculous infection than as an indicator of the presence or absence of a tuberculous disease.

In general there is no relationship between the intensity of the reaction and the extent or activity of the disease. This is particularly so in older children. The reaction then may show purely a tuberculous infection or a tuberculous disease in any stage of activity, either healed, quiescent or latent, or active. Under two years of age, however, a positive reaction shows a tuberculous focus, which is either active or only partially arrested. Certain diagnostic importance is attached to the promptness with which the reaction appears. A quick reaction is assumed to mean an active lesion of considerable extent, and a slow reaction a latent focus. This, of course, is purely problematical. The reaction usually appears in from six to twenty-four hours and reaches its height at about thirty-six to forty-eight hours. It is best

read after twenty-four and thirty-six hours. It consists of an elevated circular area of redness, about 1 cm. or more in diameter, often leaving a brownish pigmented finely desquamating spot as it fades.

Malnourished children and those exposed to tuberculosis show a greater percentage of positive reactions than is found in the normal, showing that the tubercle bacilli have already found lodgment in their bodies and only wait for a favorable opportunity, as is produced by an acute infection, especially measles and pertussis, to multiply and develop the disease. This is the reason why these children require special efforts for the heightening of bodily resistance. In normal not exposed children under four years, especially under two years, a positive reaction is relatively infrequent, showing the rarity of tuberculous infection at that early age. Thereafter, there is a gradual increase in the percentage of positive reactions, reaching 45 per cent at puberty, showing that tuberculous infections become more and more frequent as the child grows older.

While the cutaneous reaction is really reliably significant only under the age of four years, and more so under two years, it by no means loses its value as a clinical test during the rest of childhood. It may not mean much as an indicator of the presence of a tuberculous disease in an older child, but it does indicate when positive where special prophylactic measures are necessary to prevent the establishment of the disease. The majority of positive cases are, as shown by their physical and constitutional status, fit subjects for the development of tuberculosis, and a positive reaction gives us a timely warning of the presence of that predisposition. Therefore, important as the test may be in the diagnostic sense, it is almost equally as important in the prophylactic sense.

Advantageous, though, as the cutaneous test might be, it has, nevertheless, decided and important disadvantages. It does not show the location of the tuberculous lesion or the focus of infection, and it does not show whether the infection is caused by the human or bovine type of the bacillus. Furthermore, it does not, in general, indicate whether the lesion is active or latent, whether limited or extensive. As a diagnostic aid it is by far not as conclusive as the demonstration of the tubercle bacillus in the sputum or other specimens. But taking it as a whole, the cutaneous tuberculin reaction has conclusively proven its usefulness in the field of clinical medicine.

A series of 142 children up to the age of sixteen years were subjected to the cutaneous tuberculin reaction. Of these sixty-one were normal, forty-eight were malnourished, and thirty-three were exposed to tuberculosis in their immediate families, although they themselves were apparently normal. Of the normal children twelve were positive, of the malnourished eleven positive, and of the exposed twenty-one positive. This makes, approximately, 20 per cent, 23 per cent and 65 per cent positive reactions in the respective groups. There were no positive reactions in any of the groups under the age of two years, showing the infrequency of tuberculous infections at this early age. From the age of four years, the percentage of positive reactions was gradually increased, showing the heightened frequency of tuberculous infections as the children become older. All those reacting positively, particularly if also malnourished, were either given the preventative treatment or were sent to a preventorium. It is interesting to note the high percentage of positive reactions among the exposed children, showing the strong influence direct exposure has on the spread of the infection.

815 Park Avenue.

SEPTAL DEVIATIONS

HAROLD HAYS, M.D., F.A.C.S.,
New York

During the past ten years, a more definite comprehension of nasal surgery has taken place. Numerous new operations have been worked out, most of which tend toward conservatism. More refined work is being done, particularly on the nasal septum. Years ago, if a septal deviation of any moment was found, a hacking and sawing operation was performed which left the mucosa of the nose in a more or less mutilated condition. But refinement in technic has made it possible to perform the submucous operation on the septum, painlessly and bloodlessly, and with so little traumatism that the reaction is practically nil.

It is because the operation has become so popular and is performed so much more frequently than any other operation in the nasal cavity, that it will not be out of place to dwell upon the various types of deviation. The deviations may occur in any part of the septum and may vary from the extreme deviation with complete nasal obstruction to the slight deviation with hardly any obstruction. In all cases one should realize that hardly ever is an absolutely straight septum found and that the deviation in itself means nothing. One must take into account the reflex or general or local symptoms which result from such a condition and not operate upon the septum, simply because a deviation is present.

The most common deviations which are present are those of the triangular cartilage (anterior deviations) and deviations of the bony part of the septum, which are either lateral or sigmoid. To these conditions must be added the different types of spurs which are usually found near the floor of the nose. The cartilaginous deviation may be so evident that the patient can see or feel it as a sharp ridge just within the nostril. Such types of deflection give rise to a great deal of one-sided nasal obstruction but fortunately are easily corrected.

The bony deviation, on the contrary, may occur on any part of the septum and its correction may be fairly difficult, depending upon its location and the degree of adhesive process which has taken place around it. Some of these deformities are so marked that there is doubt of their character and the necessity for correction because there is marked interference with respiration. But sometimes the deformity occurs high up in the nose, between the lateral plates of the ethmoid and the only symptoms which arise are a feeling of oppression in this region or pains from pressure on the ethmoidal nerves, associated with a certain amount of chronic inflammation of the mucous membranes overlying the surrounding structures. In order to remove such a deviation, one must remove a great deal of the cartilage and bone in front of it. Outside of the actual deviations of the septum itself, one often encounters a deformity, which is called a "spur." This consists of a piece of bone which comes off from the septum itself, at right angles to it and exercises its influence mainly from its pressure into the mucosa of the corresponding inferior turbinate. The sharp spur may extend from the front of the nose to the posterior nares or it may be a thickened part of the maxillary crest which encroaches on the inferior meatal space. Spurs are only of consequence if they cause nasal obstruction or nasal irritation.

There is only one treatment for a septal deviation which is actually causing trouble and that is the submucous resection of the septum. By the injection of a dilute cocaine and adrenalin solution under the perichondrium and petiostium, it is possible to perform the operation both painlessly and bloodlessly. The only incision

which is made is one through the soft tissues anteriorly through which the parts may be elevated with ease. After the operation, the edges of the incision should come together by themselves so that no suture is necessary. There is always a certain amount of reaction after the operation, due to the traumatism to the tissues, but this should disappear at the end of the second week.

2178 Broadway.

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Dangers there are from concealed arteriosclerosis, kidney and visceral defects, relaxed belly walls, impaired vasotonus, etc. Nevertheless, while these may seem imminent, yet I have never heard of any positive damage resulting. All those whom I have questioned who have taken this course, and they are many, are enthusiastic as to the beneficial results. Some were often greatly vexed at the severity of the treatment, physical and mental, the stern absolutism, the bullying, etc., nevertheless, no one could fail to admire the consistency, the reasonableness, the wholesomeness of such a period of return to a fundamental plane of intelligent animalism. Intelligence needs curbing and guiding when it gets off the track; it becomes too transcendental; equally does animalism need to be clubbed into shape if the man is dominated by his lower centers. The methods useful for each have many points of similarity.

Much of the satirical objections urged against "active exercises," "physical culture," "monkey stunts," is perfectly sound, although too often overstated. The value of judiciously regulated exercises is beyond question; it is applicable to all, but should be carefully formulated. Many assert that if exercise is needed at all it can be taken profitably in the course of one's daily duties. It is claimed by many women that they could get all they need by contributing to household labors; that men could secure enough while walking, or in the pursuit of business and the like. This is true, but only in part. Active movement is always of value, aiding expression, translating thought into manifestations of external force; also in maintaining habits of symmetrical action and reaction. If this were done adequately, accurately, consistently, all might be well. But how much of this is consistently done by most of us? For instance, a man assures us that he wearies himself over much in the day by standing long, moving about in his business; or a woman derides the idea of more exercise when she exhausts herself continuously in domestic duties. It is true they are better for this movement than if they remained entirely sedentary, but all this merely induces weariness, boredom. Exercise thus obtained is really a labor, a monotony. Lax motor habits are thus formed, born of the necessity to put forth the least effort to accomplish compulsory results. Accuracy is only achieved by economizing force. The motions involved in manual labor are restricted, over-tiring, failing to bring into play accessory parts, such as the supporting structures, which are held overlong in tension, involving undue pressure on feet or back, often followed by minor painfulness.

The real object of exercise is to achieve uniform, accurate adjustments, capacity of full stretchings, elasticizing of parts ordinarily not employed; always striving to secure sympathetic responses of the centers of intelligence, especially motor centers. When this facility is lost, or out of repair, a large array of minor disorders inevitably arise which tend to grow worse. In consequence of this a most serious fault results, loss of uniform interreaction between governing centers and the outlying parts, inducing fatigue rather than repair. Fatigue is a pathologic condition, which, if continued

over-long, tends to impair vitality, causing also, local damage. Exhaustion leads to degeneration.

The Crux of the Whole Matter

All the practical recommendations suggested in the foregoing pages are merely devices to seize and make one's own the real curative agency being time, rest, cellular readjustment. It demands some vivid interest in one's work to reach down to lower planes of energy, and get them up and to work. The serene point of view is obtainable only by holding the spirit in equipoise; by letting slip the shackles of hurry, by anchoring fast to the one greatest thing, "peace." One may diligently pursue each and every measure, rational, suitable, eminently indicated though they be, to recover the dissociation between soul and body created in him, but, unless through and by it all he achieves a central spirit vision, equanimity, they will leave but a fleeting impress on the personality. Each man will admit a sincere desire to acquire full control over his powers, so that they may be economically expended for pleasure and profit. Forces work efficiently only when unhurried. Power and dominion can only be put forth to accomplishment from the habitual standpoint of deliberation. Accuracy is conditional upon following the rule of motor efficiency laid down by me so often in teaching muscular coordination, viz: *begin each act from the standpoint of complete relaxation, carry it onward by steady increments of force to the point of fullest tension.* It is a parabolic curve of force transmission. Thus, and thus only, does the fencer strike precisely where and when he decides to hit. By the various means outlined one may secure the habit of accurate deliberation. Unless this attitude of mind is gained, or regained, effort leads to failure. The blessed woods, the glories of the open, the breadth—the immensity of the sea, all should teach the lesson of balanced yet concentrated power.

Talk, conversation, invites diffusion, leads to uncertainties. Thought, leading to decisions, proceeds best from the closed chambers of the mind. Time is an essential factor—be it much or little, it must be enough.

Strength comes from solitude, a waiting, a communion with the best in us. With strength comes judgment, and above all, clarity. The body, when exhausted, must be provided with opportunities for renewals, but the lesson of life is best learned, power is only achieved, by earning a knowledge of our own potentialities and limitations.

Then, and then only, can man achieve the great accomplishment: To see and prove the things and in their right proportions.

1504 Pine Street.

Endocrine Troubles and Nitritoid Crises

Among patients in whose cases nitritoid crises occur, one encounters generally a number with some trouble with the functioning of the endocrine glands, affecting principally one gland or another, the thyroid being the one most frequently affected.

The establishment of the existence of these troubles in subjects with nitritoid crises should make one distrustful when it is a question of undertaking treatment with intravenous arsenobenzol injections in the case of a patient with thyroid or ovarian trouble. If we cannot deduce an absolute relation of cause and effect between endocrine trouble and nitritoid crises, it seems worth while to try opotherapy. By prolonged treatment of this kind the authors have been able to stop nitritoid crises in certain of their patients.—(*Ann. des mal. vén.*, February, 1923.)

Scleroderma in Adults and Syphilis

Syphilis, as it affects the endocrines, may play an important part in the etiology of these conditions. Two cases are reported in which this seemed to be the case.

Exactly the part played by syphilis, tuberculosis and leprosy in such conditions should be investigated further.—(*Ann. de dermat. et de syph.*, January, 1923.)

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in the sense that it restores functional cardiac capacity in the face of irreparably damaged valves, in that sense it is as truly a specific as quinine is in malarial fever, to which many a physician and cardiopath can testify.

The preparation of digitalis which is best to employ has been the result of endless discussion. It is generally conceded that even the best tinctures at times will vary in their therapeutic effect even if subjected to biological assay. Infusions, although not used nearly as frequently as heretofore, may at times be as potent as the best heralded tinctures or fluid extracts, but the constancy of the dependability of either from my experience is questionable. If the dose could always be regulated by the variation in the results of biological investigation this might not occur, but the variability in the one is necessarily dependent upon the variability of the other. In consequence of this numerous preparations have been produced, and to the credit of those engaged in the production of refined pharmaceutical preparations acceptable to the profession may it be said, that the therapeutic burden in valvular heart disease has been decreased for the physician. The culmination of those efforts in my experience has been the employment of a soluble digitoxin, called digalen (Cloetta), after its discoverer. The uniformity in the results obtained from this preparation has been clinically constant, and its intravenous applicability has stood in good stead in cases of emergency characterized by sudden collapse, not only in chronic valvular heart disease, but in the failing heart of pneumonia, where we cannot wait for drug action as the result of gastric absorption. Sixteen to twenty drop doses three times daily usually suffice in most cases of valvular heart disease, although more may have to be given depending upon the demands of the decompensated heart.

I have found that the dose of digitalis in children should not be proportionately less as in the case of other drugs, but that the restoration to compensation should likewise be the determining factor. Indeed there are some cases in children requiring even larger doses than in adults. In critical periods of rapidly failing compensation a single large dose may sometime prevent a fatal termination.

The employment of digitalis does not displace the indication for auxiliary drugs; indeed its therapeutic potency must often be reinforced by strychnine as a myocardial tonic, or by nitroglycerin as a vasodilator. In cases complicated by syphilis, mercury, potassium iodide and arsphenamin are required as well. Finally, all foci of infection, such as in the teeth, tonsils, gastrointestinal tract and accessory nasal sinuses should be eradicated to prevent further infection. Above all the fact should be kept in mind that each case of valvular heart disease is one to itself, and deserving of individual study and management; only then can we expect the cooperation of the patient so indispensable in these cases.

Routine examination of the patient at regular intervals is imperative, as associated cardiovascular symptoms may arise that impart no subjective impressions. Likewise the urine should be examined at regular periods and the blood pressure estimated.

Turkish and Russian baths in the majority of cases are not to be permitted, as the shocks from variation in temperature which they produce are in the main out of all proportion to their benefit. Hydrotherapy in heart disease is only of value when given by experts and under the supervision of the physician. In all cases their results are to be estimated by their subjective as well as objective reactions.

Public Health

The Doctor's Voice in Health Work

Public health—individual, family, community—is the popular topic of the day. Health "columns" that are humorous, pathetic, dangerous, or in rare instances constructively educational exist in many of our newspapers. Health "departments" are maintained in our magazines and the health magazine itself exists. Health charlatanism has long been with us and continues to flourish in many quarters.

Meanwhile the physician continues to practice the healing art and congratulates the world in which he works upon the fact that smallpox is no longer to be fought except by prevention, that typhoid is on the wane, that mosquito control has enabled him to devote his energies to other and bigger things than the morbidity and mortality of malaria and yellow fever. In short, the conquests of medicine have controlled or shown how to control disease through mass effort by sanitary and educational measures.

Health departments, volunteer health agencies, hospitals, dispensaries, civic clubs, business and other organizations have had a share, and a big share, in the noble deeds accomplished.

Where does the doctor fit into the picture? True, he did the work. True, he gave his life at times. True, he fulfilled the highest ideals of his calling. Because of these very ideals he lost his identity. He missed out when the picture was drawn and the credit given. But his heart—despite the slanders so often heard—has always been in relieving suffering and in preventing disease. Often he has asked conservative questions and been called an obstructionist. Frequently his busy routine has prevented him from grasping the most recent development of preventive medicine until the advance had been so great that he had had difficulty to stopping in his curative work long enough to catch up with the newer preventative measures.

And, until recently, he has not developed a channel of his own for definite expression of his desires and ambitions in the field of health work—at least not as an organized unit of society.

Today we see evidence of an awakening and an assumption of proper leadership. The American Medical Association is advocating in its *Journal* and *Bulletin* the periodic examination of the healthy person. Through its lay publications it is explaining away the mass of mystery that has too long clouded the scene and thereby made possible quackery in curative medicine and improper usurpation—of the field of preventive medicine by individuals and organizations of faddist type.

As a sign of the times the registration of its attitude on public health by the Medical Society of the County of Kings of the City of New York is a welcome note that might well be followed by medical bodies elsewhere. The resolution passed by this society at a recent meeting follows:

WHEREAS, The Public Health Committee of the Medical Society of the County of Kings has given special consideration to the relationship of official and unofficial health agencies, and

WHEREAS, The principles of mass health protection through environmental control have been established while the protection and promotion of individual health requires further study and demonstration, and

WHEREAS, Future community health activity requires closer co-operation between the health agency, the individual and the physician, therefore

Be it resolved, That this Medical Society of the County of Kings recognizing the importance of preventive medicine, the value of personal hygiene and the service rendered by health agencies deems it for the best good of all concerned that health agencies contemplating or undertaking public health demonstrations or organized public health work in the Borough of Brooklyn secure the endorsement of the municipal health authorities and the co-operation and proper degree of participation of the medical profession through the Medical Society of the County of Kings, and

Be it further resolved, That this resolution be brought to the attention of all physicians and health agencies in the Borough, of Brooklyn, City of New York.

S. R. BLATTEIS, M.D.,

Chairman Com. on Public Health.

DR. A. N. THOMSON, Secretary.

The Role of Syphilis in Industrial Disablement

Page Edmunds makes an analysis of 291 physical surveys. A great many requests for relief coming to a Baltimore company because of unsatisfactory diagnosis as evidenced by delayed convalescence and prolonged disability led the writer to an investigation of the cause, for the purpose of settlement of claims. The number of positive syphilitic findings was so great that particular attention was directed to this condition as playing an important part in and frequently causing the disablement. The

diagnosis of syphilis was based on the physical findings, blood and spinal fluid, Wassermann test. There were 291 surveys made and the blood was examined in 222 cases, of which 187 gave a negative reaction and thirty-five a positive. In sixty-nine cases of the series no blood examinations were made. Of the total number of patients, 291, 12 per cent had syphilis. Of the 222 cases in which the Wassermann test was made, 15 per cent gave positive results. In the thirty-five cases of these were thirty-two positive blood Wassermann's and three negative with positive spinal fluid. There were fourteen positive spinal fluids and two negative; in nineteen cases the spinal fluid was not obtained. In eleven cases both blood and spinal fluid were positive. Twelve patients gave a definite history of syphilis. Nineteen had definite cerebrospinal syphilis; of this number, fourteen were trainmen and had to do with the operation of trains. Of the thirty-five patients with syphilis, fifteen are now permanently disabled; and four are dead. The total amount of time lost by these thirty-five employees up to May 1, 1921, was 13,946 days. The largest number of days lost by one person was 2,003, the smallest thirty, the average being 410. The cost to the relief department for the same period was \$25,296, the cost to the company as compensation, \$25,415, a total of \$50,711.

The important questions arising out of a study of this sort are: What measures can be taken to help those already disabled; How to prevent a continuance of this condition among employees; guarding the safety of the traveling public. The author suggests that these questions be taken up from three viewpoints: that of the community and the employer, and that of the physician. These are gone into in detail and excellent conclusions given. A plea is made for thorough examination, early diagnosis and thorough treatment when the disease is found. Six brief case histories are given to show the necessity for a careful physical examination in the selection of men for important positions as trainmen.

His concluding remarks are noteworthy, "We must not overlook the fact that these persons (the paretics and ataxias) are beyond human aid and must go down to mental breakdown and death and that nearly all of them could have been cured had their condition been recognized early.

This number is but a small percentage of the cases of the disease in our service. Had we been able to prevent three or four of these thirty-five cases from going on to complete disablement, we would have saved enough money to cover the additional expense of the proposed examination.—(*Jour. Ind. Hyg.*, Jan., 1923.)

The V. D. Clinic and Its Limitations

David Lees, medical officer (V.D.), City of Edinburgh, believes that as clinics have been in existence for some years in the larger towns, it is time to consider the results obtained from them, and the costs. Most of the clinics have been of value no one can deny, but whether the cost has been commensurate with the results time can only tell. Some of the advantages have been enlightening of the public, education of the doctor, especially the medical officer of health and have placed within reach of the General practitioners the means of early diagnosis and treatment. The physicians have also had the opportunities of perfecting themselves on all of the latest methods of diagnosis and treatment. And more, facilities have been placed in reach of every sufferer of the treatment of his disease. As a result of these activities a vast amount of knowledge has been obtained concerning the prevalence, the pathology, the cure and treatment which will prove of immense value. Objections have been raised by some of the free treatment being rendered by the government, and some of the members of the medical profession have complained that patients have been taken away from them. This latter point is not a common one.

A venereal disease clinic should not be an isolated one except in a large city, as the stigma attached to a person visiting it will have a detrimental effect upon the attendance. Moreover it detaches the clinician from his fellow workers and he loses the service which is so necessary in many cases. There are difficulties in dealing with the infected person, as many have a fear of coming to the clinics. The importance of the initial interview is stressed. The physician in charge should see each new patient and he should endeavor to teach them the dangers of the disease by pointing out the necessity for prompt and continuous treatment, of his ability to cure them, the principles of cleanliness and the advantages of a straight and sober life. These principles are not given in the form of a moral lecture but as an essential part of the patient's education. The new patients should be separated from the old ones as the hardened patients are inclined to try to frighten them, and privacy is enjoined. The social side of the disease is recognized and trained workers recommended. The importance of securing results in individual

patients, other than the number of cases seen is stressed. It is recommended that some method be devised to deal with the patient who dismisses himself from treatment when no external manifestations are seen. A system of social service follow up in the homes is needed rather than the letters which are sent. Compulsory notification of those who dismiss themselves from treatment is thought to be one of the solutions to this perplexing problem. Suppression of charlatans and the prohibition of quack remedies is advised. The difficult problem of treating seafaring men is recognized and international action is recommended.

In Edinburgh the American Consul prohibits any American sailor from leaving the city if he is in an infectious stage. Difficulties are encountered in obtaining the source of infection and when given to the medical officer, it is impossible to get the person accused to come to the clinic for examination and treatment. The author thinks the health authorities should be given the power to bring these persons in for examination and treatment. It is suggested that medical students be impressed with the importance of gonorrhea, syphilis and post graduate courses are recommended for practitioners who treat these diseases. Legislation is needed to overcome many of the difficulties in venereal disease control.—(*The Medical Officer*.)

The Periodic Medical Examination of Apparently Healthy Individuals

With the slogan "Have a Health Examination on your Birthday," the National Health Council, composed of the leading national voluntary and official health and medical organizations of the country, is sponsoring a country-wide campaign for periodic health examinations which began July 4, 1923, and extending until July 4, 1924. The movement has been endorsed by the American Medical Association in accordance with the following resolution, which was adopted at the St. Louis meeting of the Association last year:

"WHEREAS, The need and value of periodic medical examination of persons supposedly in health are increasingly appreciated by the public, it is recommended by the Council on Health and Public Instruction that the House of Delegates authorize the Council to prepare suitable forms for such examinations and to publish them in *The Journal of the American Medical Association*; and that the county medical societies be encouraged to make public declaration that their members are prepared and ready to conduct such examinations, it being understood that the indigent only shall be examined free of charge and that all others are expected to pay for such examinations."

Dr. R. L. Wilbur, President of the American Medical Association, referred to the necessity for periodic physical examinations of all people in his presidential address at San Francisco this year.

A committee of the American Medical Association has prepared excellent forms which can be obtained at cost price from the Association headquarters, 535 N. Dearborn Street, Chicago, Ill. A reprint by Haven Emerson, M.D., on the same subject, outlining suggestions for such examinations, is also available at the American Medical Association headquarters.

The National Health Council, directly or through the co-operation of other agencies, has prepared a pamphlet for distribution to the public, two excellent posters, a set of thirty lantern slides with lecture outline included, and a moving picture film. With the exception of the latter which is available for free distribution, all of the other material is sold at cost price.

The members of the National Health Council include the following organizations:

American Association of Industrial Physicians & Surgeons, American Child Health Association, American Public Health Association, American Red Cross, American Social Hygiene Association, American Society for the Control of Cancer, Conference of State and Provincial Health Authorities of North America, Council on Health & Public Instruction of the American Medical Association, National Committee for Mental Hygiene, National Committee for the Prevention of Blindness, National Organization for Public Health Nursing, National Tuberculosis Association, United States Public Health Service, Women's Foundation for Health.

The Need for Full Time Health Officers

At the twenty-second annual conference of sanitary officers and public health nurses of New York State Dr. Allen W. Freeman, professor of Hygiene and Public Health in the Johns Hopkins School of Hygiene and Public Health, in an address on "Health Administration in Rural Districts," urged the importance of appointing full-time health officers on a county basis. In his opinion the ideal way to bring this about is a permissive state law leaving it optional for counties to come into the system but offering grants in aid from state funds to those coun-

ties which adopt the plan of a full-time health officer. "The question of all questions in regard to the county health officer," continued Dr. Freeman, "is how to keep the office out of politics. Once the office becomes a question of political patronage all hope of permanent constructive work is gone. The comparative success of our colleagues in England in keeping politics out of public health depends on the rigidly specified conditions under which a license or diploma in public health may be procured. If we can devise a licensing system whereby an intending health officer, before appointment, must pass a rigid examination by an impartial authority, we can lessen greatly the pressure of politics. Nine times out of ten when a health officer is displaced for political reasons it is because the appointing authority cannot resist the pressure to appoint some one else to the position. If appointment were limited to those properly qualified this pressure would be much reduced or entirely absent. The traditional civil service requirement does not meet the need because the test is applied by a non-technical agency and the examinations are not sufficiently severe. It has seemed to me that it might be possible for the U. S. Public Health Service, given the necessary authority by Congress, to institute a system of examining and licensing health officers issuing perhaps a National Diploma in Public Health. In this way the qualifications specified by statute might be made to mean something more than they do at present."

Dr. Freeman reported that taking the United States as a whole there are now 231 counties in thirty-three states which have whole time health officers and these officials serve 11.6 per cent of the rural population of the United States. The number of counties with this type of health administration has doubled since 1920, when it was 109. On the basis of many years' experience and observation Dr. Freeman stated his belief that the whole time county plan is the real answer to the immediate problem of health supervision of rural districts. "Its service is tangible and valuable, its cost is not excessive and it commends itself to the judgment of those who support it and live under its service."

Even with ideal health administration, however, Dr. Freeman asserted that the complete health service of the future can be rendered only when there is complete integration of the private practice of medicine with the practice of public health. "This must be brought about through an organization of all the various sorts of doctors necessary to keep the individual well, or to restore him to health when he becomes sick in spite of our efforts, on the one hand; and on the other hand we must have an organization to maintain the contact between the individual citizen and this medical organization. These functions, it seems to me, represent the true fields of activity of the physician and the health officer of the future."

Dr. Freeman however condemned "state medicine" as the term is often understood, namely, "a vast political machine in which all physicians are employed by the state and in which the individual citizen receives his medical service as it is given him, without choice of physician or of method." The solution according to Dr. Freeman must be found somewhere "between the present haphazard, hit or miss individualistic system with its inadequacy, its inefficiency and its waste on the one hand and the so-called state medicine on the other." It is the task of the health official in Dr. Freeman's belief to find the middle path and the right solution, and certain tendencies already indicate the general direction this solution will take.

"It seems probable that for rural areas at least the medical health service of the future will center about the county hospital. Such a hospital, with a whole time staff on a salary basis, with its attached out clinics will be the chief source of medical service. To it will come all the seriously sick of the county, all maternity cases, all obscure chronic complaints, for diagnosis by every available means and for treatment, the best that can be had. Out from the hospital will go the visiting nurses, covering the whole county, doing what we know as public health nursing as well as ordinary visiting nursing, if there is any distinction between the two. The private practitioners of the county will be mainly concerned with the health supervision of their patients. They will probably be paid on an annual fee basis and will have approximately one thousand patients each. Everyone will be under constant supervision. There will be no need of much of what we ordinarily call health work. It will be the routine, normal activity of the whole medical service. The medical director of the county will be in charge of the whole organization, under a board of trustees. The whole will be supported in part from state and local funds but largely from the payments of patients. The savings in medical and surgical fees which would result from having a single consulting physician and a single surgeon, kept constantly busy with an even flow of material, instead of having several practicing over a large area and spending most of their time going to and fro as at present, "would be great."

Speaking before the section of public health nurses Dr. C. Floyd Haviland, chairman of the State Hospital Commission, discussed "Mental Disease as a State Problem" and urged the need of the fifty million dollar bond issue for the improvement and extension of the state hospitals which will be submitted to the people in a referendum vote next fall according to the bill recently adopted by the Legislature and approved by Governor Smith. Dr. Haviland stated that there are now 41,300 insane under the care of the State of New York, that new admissions amount to between 8,000 and 9,000 a year and that the overcrowding as of June 1 this year amounted to 7,247 on the basis of those in residence after deducting 3,242 patients on parole at their homes. "Throughout the United States," said Dr. Haviland, "there are 250,000 hospital beds for the insane, which is in excess of the number of beds of all the general hospitals in the country. There are approximately 50,000 admissions a year. One single form of mental disease, dementia praecox, numbers twice as many cases in hospitals as there are cases of tuberculosis in hospitals in the United States. The actual cost of the care of the insane in the United States amounts to about \$75,000,000 a year and in this state for the last few years it has run from ten to thirteen millions."

Soap Hygiene Slighted in Schools

"Schools throughout the country ignore to an alarming degree the importance of pure soaps in their teaching of hygiene," said Dr. Walton L. Savage, president and founder of the Savage School for Physical Education, New York City, who has just conducted an investigation to determine the attitude of the physical directors of American schools on the subject of soap, and to encourage the use of the pure, white unscented soaps recommended by prominent dermatologists as opposed to highly colored, perfumed soaps.

"In many schools even the rudiments of soap knowledge are neglected," said Dr. Savage.

"Many directors while agreeing that pure, white soap is an important factor in physical well being, confess that they have given little thought toward directing the attention of their students to this vital requisite to cleanliness."

Dr. Savage received replies from the physical directors of 146 schools, camps and Y. M. C. A.'s in thirty states all over the country.

Among those who emphasize the fact that soap is a neglected subject is H. H. Burdett, supervisor of Physical Education of the Public Schools of Montgomery, Ala., who says, "Strange to say in all my talks to pupils on health and hygiene I never once gave this very important subject a thought. I shall most certainly do so in future. I very heartily endorse your opinion upon the importance of using pure white unscented, uncolored soap. I have known several cases of unpleasant irritation of the skin caused by using impure soap, which have at once been remedied by the use of pure soap."

Dr. Fred Burger, director of the department of health and physical education of the Kansas City Public Schools says, "In our schools we use pure white soap. In our department of health and physical education we have not directed any special attention to this important topic but we will gladly do so."

A. D. Harrington of the Y. M. C. A. at Durham, North Carolina, says, "I must confess that in my teaching of physical education I haven't directed special attention to this important subject but in the future shall do so as I agree with you that the use of a pure white soap uncolored and unperfumed is safer and much more beneficial."

From Canada, J. H. Crocker, secretary Department of Physical Education of the Y. M. C. A. writes, "We have given it very little thought, but we are very glad indeed to have our attention focussed on this particular phase of education."

Many physical directors however, have given attention to soap hygiene in their instruction, and these are emphatic in stressing the importance of the use of pure, white soap.

J. Blake Hillyer, director of physical training of the Board of Education of the City of New York said, "In all our courses for normal and training classes emphasis is laid with regard to procedure in hygiene upon the necessity for the use of uncolored, unscented soap. Dr. Adela J. Smith, assistant director, Handicapped Children, in her experience in clinics in various hospitals in the city has noted many cases of skin eruptions and scales resulting from use of highly colored soaps which disappeared after from one to three weeks' use of pure, uncolored, unscented soaps."

Dr. L. R. Burnett, superintendent of Recreation at Paterson, N. J., said, "In the lectures on hygiene given as a part of the health program in all schools, we have emphasized the advantages of soaps made of pure materials. Highly colored or perfumed soaps are usually more expensive without added value and these points were often repeated. By means of moving

pictures at our evening play centers we have shown the processes of manufacture and ingredients needed in the production of pure uncolored and unscented soaps."

Colonel Royal P. Davidson, superintendent of the Northwestern Military and Naval Academy at Lake Geneva, Wis., Eugene H. Lehman, director of Highland Manor, Tarrytown-on-Hudson, N. Y., and Joseph Dana Allen, headmaster of the Polytechnic Preparatory County Day School, Brooklyn, N. Y., bar scented soaps.

The psychological effect of colored soaps was noted by Blanche E. O. Graham, supervisor of city schools at Bloomington, Indiana, who says, "I believe that the psychological effect of color plays an important part in the sale of soap. Children particularly like to use soaps made of bright hued materials or ingredients."

According to Earl W. Brannon, director of the Physical Department of the Y. M. C. A., Youngstown, Ohio, the athletes react instinctively to the best in soaps. He says, "I am certainly of the opinion, that the men who use the pure white soap, which we have at their disposal, are men who are in much better physical condition, who participate more frequently in competitive athletics such as basketball, boxing, hand ball and sports which require a great deal of physical exertion and stamina."

C. E. Hammett, of the Department of Physical Education, Allegheny College, said, "We furnish the members of our athletic teams with pure white soap, and encourage the use of no other among the students who attend the gymnasium classes."

"We consider this a necessary hygienic precaution, since while color and scent do not necessarily render soap impure, they may be used to hide impurities."

Carl H. Burkhardt, supervisor of Physical Education of Buffalo, N. Y., said, "We are using at least five thousand pounds annually in connection with our swimming pools and shower baths, and we have made it a point to buy pure white soap, uncolored and unperfumed."

Health Commissioner Nicoll

Dr. Matthias Nicoll, Jr., of Albany, has been appointed State Commissioner of Health, to fill the vacancy caused by the death of Dr. Hermann M. Biggs, who had held the position since 1914. Dr. Nicoll has been connected with the State Department of Health since 1915, and for the past four years has served as Deputy Commissioner. Previously he was Secretary of the Department and Director of Public Health Education. Before coming to Albany he had long been associated with Dr. Biggs and Dr. William H. Park in public health and laboratory work in the New York City Department of Health.

Dr. Nicoll was born in New York City in 1868 and is a graduate of Williams College, Class of 1889. He received his medical education at the College of Physicians and Surgeons of Columbia University, and specializing in pediatrics and children's diseases, was for many years attending physician at the New York Foundling Hospital, the New York Infant Asylum, Seton Hospital, Willard Parker Hospital and Bellevue Hospital. Later he served for six years as Assistant Director and Chief of the Division of Diagnosis in the Laboratories of the New York City Department of Health.

In 1914-15 in collaboration with Dr. William H. Park, Director of the Research Laboratory of the New York City Department of Health, Dr. Nicoll demonstrated by a series of experiments on guinea pigs that the value of tetanus antitoxin in the treatment of lockjaw was greatly enhanced when injected directly into the spine. Subsequently in a series of lockjaw cases occurring in and about New York City the value of this method was fully proven, a very much greater percentage of the cases recovering than had formerly been the case when the antitoxin was used in the tissues and veins. Since then the intraspinal use of tetanus antitoxin in the treatment of lockjaw has been generally accepted as giving the greater chance of recovery.

Dr. Nicoll is a trustee of the State Hospital for Tuberculosis at Raybrook, a fellow of the New York Academy of Medicine and of the American Public Health Association, and a member of the Executive Committee of the State and Provincial Health Authorities. He is the author of many scientific articles on infectious diseases, laboratory research and public health administration.

The Inheritance of Syphilis.

Palacio and Moral ascribe the transmission of syphilis to the mother, only through the dystrophism of the spermatozoa does the father affect the child. When the mother is affected the child is always affected. Latent tertiary syphilis in both parents indicates dystrophism of the reproductive elements, but the disease is liable to flare up under the influence of gestation, in which case the child is liable to have congenital infection as well.—(*Semana Medica*, Buenos Aires, April 20, 1922.)

The Medical Times

A MONTHLY JOURNAL
OF

Medicine, Surgery and the Collateral Science

ESTABLISHED IN 1872

EDITED BY

H. SHERIDAN BAKETEL, A.M., M.D., F.A.C.P.

ARTHUR C. JACOBSON, M.D.

Associate Editor.

Contributions.—EXCLUSIVE PUBLICATION: Articles are accepted for publication on condition that they are contributed solely to this publication.

When authors furnish drawings or photographs, the publishers will have half tones and line cuts made without expense to the writers.

SUBSCRIPTION RATES

(STRICTLY IN ADVANCE)

UNITED STATES \$2.00 per year
(Including Alaska, Cuba, Mexico, Porto Rico, Hawaiian and Philippine Islands)

CANADA \$2.25 per year
FOREIGN COUNTRIES IN POSTAL UNION \$2.50 per year

SINGLE COPIES, 20 CENTS

Definite written orders for THE MEDICAL TIMES are required from all subscribers, to whom the journal is thereafter regularly forwarded.

Notify publisher promptly of change of address or if paper is not received regularly.

Remittances for subscriptions will not be acknowledged, but dating on the wrapper will be changed on the first issue possible after receipt of same.

All communications should be addressed to and all checks made payable to the publishers.

MEDICAL TIMES CO.

ROMAINE PIERSON, President

H. SHERIDAN BAKETEL, Treasurer

GEORGE B. CREVELING, Secretary

95 Nassau Street

New York

NEW YORK, AUGUST, 1923

Tonsillectomy Results

If one reads the paper of Alvarez, in the *Journal of the American Medical Association* of May 26, 1923, he will, if convinced by the author's data and reasoning, lose most of his enthusiasm for the operation of tonsillectomy in adult life, except for recurring tonsillitis and sore throat. Alvarez presents the results of a careful study of 251 subjects who passed through his office over a period of two years.

It would seem that it does not pay to remove the tonsils of adults for frequent colds, or on general principles, or because a patient is run down and nervous, or because he has headaches, deafness, otitis media, enlarged glands in the neck, stomach troubles, bad breath, or rheumatism. Out of forty-seven cases of rheumatism but seven were cured and five improved. It does not pay to remove tonsils simply because they look infected or because something can be squeezed out of them.

Alvarez thinks we ought to be extremely conservative about doing tonsillectomies for the relief of troubles outside of the throat, and few promises should be made in cases of chronic disease elsewhere in the body, in case we should operate. Unless a patient is seriously menaced, or unless there are good reasons for believing that a disease is one that can be influenced by the removal of focal infections, conservatism must be the rule.

All of which makes ducks and drakes of the classical and prevailing indications, and will smite with grief the enthusiastic operator who is not exactly a *rara avis* hereabouts.

New Use for Intelligence Tests

At a recent Convention of Civil Service Commissions a proposal was discussed looking to the determination of the general intelligence of candidates for all kinds of political positions.

Whoever proposed such a measure must be either a sadist or a humorist.

Imagine the rating, under such a system, that would have to be given to the Governor of one of the Carolinas, we forget which, who recently issued a proclamation appealing to the churches of his State to pray for the destruction by the Almighty of the boll weevil.

We should say that such a scheme is highly impracticable, if the country is to go on as usual.

Osteopathic Standards

At the twenty-seventh annual convention of the American Osteopathic Association on July 4 the recommendation was made that every physician should be required by law to pass a practical examination in his profession once in five years. "This would be far from being a drastic or unreasonable requirement," said the gentleman who introduced the recommendation, "for it is entirely proper that any man who assumes responsibility for life and health should demonstrate his fitness. That is the only way the public can be protected from unfit men. It would work no hardship on the up-to-date, progressive physician, and any other sort of doctor is a menace."

If there is any regular practitioner so naive as to believe that what his brethren of the old school have thought and said about the osteopaths has induced in them an inferiority complex, he had better read the foregoing paragraph over again and do some thinking.

Of course when the speaker in the convention alluded to physicians he obviously meant osteopaths as well as regular practitioners.

Can you beat it?

There is nothing the matter with the osteopath's ability to take himself seriously, whatever we may think of his sense of humor—or of his grade of intelligence.

The Twelve-Hour Day

It may safely be assumed that the consensus of informed medical opinion would be overwhelmingly against the twelve-hour day, on the basis of hygienic considerations alone. The report of the steel corporation upon which the continuation of the twelve-hour day still rests in part for justification was a curious document. How could it be argued that 15 per cent. would necessarily have to be added to the consumer's price for steel, in case the twelve-hour day were abolished, when the profits of the business were almost fabulous in amount? Now the argument is made to hang upon the matter of labor surplus. It can hang upon something else next year. It is hard to believe that the greed of this corporation is so great that it simply cannot forego some profits and bring itself promptly to the point of instituting a humane, democratic and American policy in the steel mills. At any rate, why does it not remain silent and frankly defiant on the subject of the twelve-hour day; it might as well, for its statements are obviously framed for morons and not addressed to the intelligent elements in the population. What a chance was missed by the President to denounce the corporation's pharisaical letter! It is a pity that this

hard-boiled corporation should try to disguise its real intentions. Ruthlessness and hypocrisy make a nauseous combination. The avowed exploiter is a sweet-smelling and sportsmanlike figure, compared to this steel corporation, and commands some respect.

Another Milestone

Still another milestone has been passed on the road leading to a restoration of our professional rights. Federal Judge George M. Bourquin, in a decision handed down on July 6, declares the Volstead act unconstitutional in so far as it undertakes to interfere with the practice of medicine. If the use of alcohol therapeutically is tolerated and sanctioned by the Congress the judgment of the physician must be relied upon to determine dosage. Arbitrary and unreasonable legislative interference is an intolerable abuse of the functions of government. There must be no dictation to the physician in the treatment of cases where alcohol is prescribed.

Camouflaged Food

The multiplicity of "eating places" in the metropolis and elsewhere which have taken the place of saloons is doubtless related to the strangeness, in many instances, of the food served therein; that is, a good commercial profit accrues to him who can serve something resembling food that is non-toxic and sell it at a relatively high price, so there has been a great rush into the business.

In the course of our observations in this field we have been impressed by the truly remarkable ingenuity displayed by those who conduct these places. They have invoked all the material arts in their alchemy. If they could only send one away with the assurance that one would not feel famished in about two hours after partaking of this near-food, their triumph would be quite complete; it is this that gives these interesting purveyors away.

Yet we do not wish to be understood as attacking these caterers. They have our whole-souled admiration as resourceful artists.

Miscellany

CONDUCTED BY ARTHUR C. JACOBSON, M. D.

A Notable Book

The following book review, taken from *Hygeia* for July, reveals an interesting use in literature of Christian Science and its background of besotted selfishness:

Impromptu: By Elliott Paul. Price, \$2.50. Pp. 356. New York. Alfred A. Knopf. 1923.

When "Indelible" by Elliott Paul appeared last year, everyone agreed that it was a first novel of promise and power. It showed humane feeling and bitter cynical satire of equal strength. Now "Impromptu," following the lines of John Dos Passos' "Three Soldiers," reveals the same ability, somewhat heightened; it has artistic realism, utilizes cleverly the "throwback" of the stage and the "movies," and at the same time betrays a rather dangerous lack of reticence which prevents complete acclaim. But *Hygeia* is not devoted particularly to literary review, so that we shall consider immediately certain aspects of the story that are of health or medical interest.

Somewhere about the middle of the book appears one Dr. Louis, a New England village physician. Paul records his doings with a sentient realism.

"Sunday was a lazy day for Dr. Louis. The Glen-

dale patients were so accustomed to some sort of observance of the Lord's day that only the most severely ill failed to relax. Of course, the obstetrical cases now and then reached that climax which is both a beginning and an end, but Doc had very good luck with babies. He had administered the initial swat to so many of the Glendale young people that the Sabbath procession past his window often brought reminiscences which, had the boys and girls been aware of them, would have caused no end of embarrassment.

"Hmmm. There goes Tilly Sawyer. Well, well. Quite a young lady." Let me see. She was a L. H. P., wasn't she?" or "That must be Duck McVey going up the streets. A difficult R. P. High forceps."

Of all the alphabetic combinations that indicate the position of the unborn child, few could miss the possibilities any more than these. We have right-occipito-posterior, R. O. P., right mento-anterior and left mento-posterior, R. M. P. and L. M. P., and many others, but there are no diagnoses such as those included by Mr. Paul. It would pay our realistic novelists to check themselves up on these things, if only in the admiration of physicians and nurses whose minds now hesitate as they scan the errors.

Running through the story is a satire on the healing practice of the Eddyite cult. It is not perhaps a significant part of the story, but notice of it is vital, because it took courage on the part of the author to include it, and because few reviewers have had the courage to note it. The cult maintains a costly and efficient publicity department.

Celia, the elder of two orphaned sisters, has for some time been supporting the younger Dorothy. Celia is a confirmed believer, with all the old hokum. "There, there, dear, God is love" she says, "more than that we cannot ask." Eventually Celia fades physically beneath the strain of hard work and begins to have spells of weakness and pains in the heart. Finally it is up to Dorothy to support the family. She enters the "oldest of professions" and the amount of the family income varies with the prices that men pay for Dorothy's favors. During the years Celia passes into gradual decline. Her attacks become more frequent and she sustains herself with mental affirmations and whiskey, the latter seldom lacking owing to the work of Dorothy. For each replenishment of the family purse Celia has an Eddyite slogan. "There can be nothing evil in the divine mind," she murmurs. Finally when Dorothy has plumbed the very depths, Celia sits in her room at home and hears the chimes of the main C. S. church. She hurriedly attires herself and attends the service in the magnificent edifice.

"Across the auditorium, the words engraved upon the panel took life:

If Sin Makes Sinners,
Truth and Love
Can Unmake Them.
If a Sense of Disease
Produces Suffering,
And a Sense of Ease
Antidotes It,
Disease Is Mental.

"Through the reading of the lesson, Celia became more and more excited and when the time for testimonials came, something lifted her to her feet. Her voice, tremulous and uncertain at first, gained strength with each word.

"I wish to show my gratitude for what Science has done for me. I have been told by doctors that my

heart was diseased and that I could not be cured. I have had the care of a younger sister and financial troubles that seemed insurmountable.

"Years ago, I made a beginning in Science but, it seems, I could not clear my mind of error at once. A few weeks ago, when things were at their worst, suddenly my slight knowledge of Science came to my rescue and I was able to meet the immediate obligation.

"My sister and I were obliged to move. Rooms were next to impossible to get and I do not know the streets of Boston well. The apartment I secured seemed to be dingy, squalid, and in most uncongenial surroundings. Since I moved in, I have been unable before tonight to leave the place.

"This evening something impelled me to raise the window and instantly there came into the room the tones of our Mother Church.

"I know now that nothing can harm me, nor my little sister. How grateful I am to God and to Mary Baker Eddy I cannot say."

At that very moment, as the reader knows, the little sister has reached the last stages of her degradation, and the elder, who is offering the testimony, is a besotted wreck in the last stages of physical dissolution. For this example of artistic satire and quite realistic exposure of fallacy, Mr. Elliott Paul deserves a measure of thanks.

(Concluded from page 188)

Miscellaneous

In pruritus ani and vulvae $\frac{1}{2}$ M administered weekly or fortnightly for between six to ten exposures usually relieves, and often eliminates the itching entirely, or at least for long periods. This is practically the case when no known local cause exists, or when, having determined such a cause, it has been eliminated. In universal essential pruritus the rays are also often valuable, but only in a substantial minority of cases. At times, though rarely, flat warts respond, and an occasional case of Pringle's disease is favorably influenced. Plantar warts, callouses connected with ring-worm of the foot, hyperkeratosis of the palms and soles, and an occasional case of ichthyosis respond to doses varying from $\frac{1}{4}$ M to $\frac{1}{2}$ M a week, and in callouses $\frac{1}{2}$ M to 1M a fortnight to a month, for from three to six exposures.

Conclusion

This completes the range of utility of the x-rays. It will be seen that their scope is broad, and the underlying basis for their efficacy or failure not entirely clear. In the last analysis the x-rays must be regarded as possessing a utility originally determined by the method of trial and error. But today, we understand the value and limitations of this agent and it is not only no longer dangerous to employ it, but is of positive value in the management of more cutaneous diseases than any other single therapeutic measure. It is pardonable, however, to reemphasize that the rational treatment of skin diseases is awaiting a clearer understanding of their causation and logical control.
780 Madison Ave.

Mungo Park (1771-1806), famous Scottish explorer, discoverer of the great Niger River of Africa, was a physician, Edinburgh, 1791.—(Med. Facts.)

The first institutional instruction of the blind attempted in the United States was by a physician, John Denison Russ (1801-1881), who was born in Massachusetts, graduated at Yale in 1823 and studied medicine in the United States, in London and on the Continent.—(Med. Facts.)

(Concluded from page 190)

X-Ray Examinations

Thorax:—Lungs:—Apices and upper portion of both lungs somewhat clouded; moderate thickening of larger trunks and branches, throughout; hilus shadows somewhat thickened; no calcified glands seen.

Diaphragm:—Normal.

Heart and Aorta:—Normal.

Gastro-intestinal Tract:—Oesophagus:—Meal not delayed in passing into the stomach.

Stomach:—Hypotonic, large, 2 inches below navel, shows no filling defects or hour glass contractions; evacuation complete at 6-hour period.

Pylorus:—Normal position; patency obstructed by spasm; opening delayed.

Duodenum:—Bulb large, irregular.

Colon:—Normal, except for sluggish action.

Pictures of the gall bladder region, made with the use of the Bucky Diaphragm, are suspicious (only) of gallstones.

Clinical and Laboratory Findings

At 3:00 P. M., January 18th, 1922, temperature 98, pulse 88, respiration 20, blood pressure, systolic 108, diastolic 78.

Urine:—Three specimens examined, including a 12-hour, mixed specimen; negative findings, except very faint trace of albumin in one specimen.

Blood:—Hemoglobin 70 per cent.; erythrocytes 4,000,000; leucocytes 8,250; differential count shows a relatively high lymphocytosis, 44 per cent.

Wassermann:—Positive, 3 plus.

Summary of the Findings

- (1) Syphilis.
- (2) Pathology in the right upper quadrant of abdomen.
 - (a) Bacterial infection, influenced by lues, involving duodenum, gall bladder and pancreas.
- (3) Anemia.
- (4) Diseased tonsils.
- (5) Infiltration, right upper lobe (old quiescent tuberculosis).
- (6) Ante-flexion of the uterus, marked.
- (7) Dental caries; gingivitis.
- (8) Pernicious nausea and vomiting.

Treatment Instituted

We first saw this patient on January 18th, 1922, our observation of her continuing until January 21st, when she was returned to her physician for further treatment. On January 20th we drained the bile passages by the Lyon method; the attending physician had recommended this be done. On January 21st we administered an intravenous dose of .1 Gm. Silver Salvarsan, thereafter ordering patient back home in the eastern part of the State. She was advised to immediately go to bed, to remain in bed for a period of two weeks, when we desired her to return to the Clinic for the second of a proposed series of drainages of the bile passages. The diet was restricted to fluids. All medication was stopped, except an occasional dose of mercury with chalk. For the relief of the nausea, we suggested dilute hydrocyanic acid, this being about the only antemetic which had not previously been used. In the event nausea was not thus controlled, we saw no objection to the continued use of small doses of morphin, hypodermatically, which had formerly been the only potent antemetic.

Lethal Termination

The case terminated in death on February 15th, 1922, no relief whatsoever having been obtained. The attending physician wrote us: "Patient died of exhaustion during a severe attack of vomiting."

Cause of Death

Immediate Cause:—Inanition—anemia due to pernicious vomiting.

Contributing Cause:—Gastric Ulcer, Syphilitic in Origin.

The Solomon Clinic Bldg.,

Corner Brook and Chestnut Streets.

Spinal Puncture in Diagnosis and Treatment.

C. H. Bastron, reviewing the opinions of syphilographers on the value of spinal puncture, finds that many agree that it is of great diagnostic value in early syphilis; that in late neurosyphilis the diagnostic value is beyond question; and that authorities are practically unanimous in urging that no case of syphilis be discharged as cured without one or more spinal fluid examinations.

The status of intraspinal therapy in neurosyphilis is still uncertain; and the curative value of spinal drainage is disputed. References.—(Am. Jour. Syph., July, 1921.)

The Physician's Library

Physiology and Biochemistry in Modern Medicine. By J. J. R. Macleod, M.D., University of Toronto. 992 pages. St. Louis: C. V. Mosby Co., 1922.

The fourth edition of this well-known book has been improved by the re-writing of certain chapters and the addition of a considerable amount of material. As we have said before in previous reviews, this book stands out by itself as a masterpiece.

Clinical Diagnosis. By Alfred Martinet, M.D., of Paris, with the assistance of others. English Translation, Louis T. deM. Sajous, M.D., Philadelphia. 2 Volumes. Philadelphia: F. A. Davis Co., 1922.

The subject has been covered very completely in these two excellently printed and well-illustrated volumes. There is, of course, a considerable tinge of the foreign and many ideas are carried out with a technique somewhat differently from our own, but we can characterize the volume as containing a tremendous amount of very useful medical information. Having been prepared by different authors, one is able to observe that French physicians, even like those in this country, have different methods of doing the same thing. The authors bring out their points with amazing clearness. It would not be difficult to find within the pages of these books some ideas which do not conform to our own, but there is so much of value that the reviewer can highly commend. Some of the illustrations are very excellent, particularly the colored plates. There are more wood cuts than one would like to see, but by and large the physician reader should be thoroughly satisfied with the contents of these volumes.

Food, Health and Growth. By L. Emmett Holt, M. D., 273 pages. New York: The Macmillan Company, 1922.

These are the Lane lectures given at the Leland Stanford University by the eminent author, who is an authority on child nutrition. For those interested in this subject, these lectures are invaluable.

Ophthalmoscopy, Retinoscopy and Refraction. By W. A. Fisher, M.D., of Chicago. 225 pages. Published by the author, 31 North State Street, Chicago.

Oculists will appreciate the practical value of this book. Its large number of illustrations give it a distinct place in ophthalmological literature.

Diseases of the Thyroid Gland. By Arthur E. Hertzler, of the University of Kansas. 245 pages. St. Louis: C. V. Mosby Co., 1922.

Dr. Hertzler has drawn upon his broad experience to present in a very definite and comprehensive way the knowledge he has gained clinically of this important subject. He has gone into detail, and some very good illustrations aid in the pleasing presentation of an important subject.

X-Ray Dosage. By William D. Witherbee, M.D., of Presbyterian Hospital, and John Remer, M.D., New York Hospital. 87 pages. New York: The Macmillan Company, 1922.

Röntgenologists will appreciate this book. To the average physician it is like so much trigonometry but to the specialist it is very definite and unusually useful.

Scientific Psychology. By Knight Dunlap, of Johns Hopkins University. 368 pages. St. Louis: C. V. Mosby Co., 1922.

Physicians usually know some psychology. Successful ones are rather well versed in it and the eminent ones are said to be real psychologists. Be that as it may, to the physician who is thoughtful and studious we can commend this book as giving him all the elements necessary for the understanding of this great subject.

Intracutaneous Reactions in Pertussis

Thomas G. Hull and Ralph W. Nauss, Springfield, Ill., used nine different preparations of pertussis vaccine, and 341 injections were made intracutaneously. The work was done at an institution where an epidemic of whooping cough was developing. The ages of the children tested in most instances were from 8 to 12 years. The results of the investigations recorded do not indicate that preparations of pertussis bacilli can be used intracutaneously to diagnose whooping cough. Freshly prepared suspensions, suspensions 3 years old, suspensions killed by heat and suspensions, killed by chemicals gave results that were conflicting. Nearly all children, whatever their ailments, gave positive reactions. Whooping cough patients at times gave negative reactions, however.—(*J. A. M. A.*)

Diagnosis and Treatment

The Fate of Arsenic After Intravenous or Intrathecal Injection

R. D. Rudolf and F. M. R. Bulmer say the question of the fate of salvarsan, after its intravenous and intrathecal injection is a large one, and many laboratory experiments have been performed in the attempt to solve this question. After its administration, arsenic soon appears in the urine and feces and it is probable that these are the chief routes of elimination. This study only went into the question of regarding the liver and spinal cord and it was found that the drug lodges chiefly in the former in proportion to the amount placed in the blood stream. The nervous tissues apparently do not take up any recognizable amount. The experiments suggest that the drug apparently lodges in the long bones and in the lungs. The writers failed to find any reference as to researches in spinal cord analysis after intravenous injection of the drug. The Marsh test is now considered obsolete for the quantitative estimation of small amounts of the drug.

It is not surprising that no arsenic appear in the spinal cord when one considers the nature of its tissues. It has been pointed out by McIntosh and Filder that the governing factor in the passage of dyes into the brain after intravenous injection was due to their solubility reaction. This reaction is a peculiar and not a general lipid one. It in a manner corresponds to a solubility in chloroform and in water, or perhaps their partition coefficient in these liquids. In all probability the same holds good for the spinal tissues, owing to their composition. Thus from a point of view of solubility, no arsenic would be expected to lodge in the spinal cord after intravenous injection and this is just what the experiments showed.

When one considers the small amount of arsenic, if any, that reaches the cord after intravenous administration, even when this is supplemented by intrathecal injection next day, it seems unlikely that any possible good effects in the treatment of cerebrospinal syphilis by either the intravenous use of salvarsan nor this enhanced by intrathecal injection of arsenic containing blood serum can be due to the presence of the drug in the cord, but must be explained some other way. When arsenic is injected intravenously little, if any, of it reaches the central nerve tissue.—(*Am. Jour. Med. Sci.*, Jan., 1923.)

Contributory Factors in Postarsphenamin Dermatitis

John H. Stokes and Edward P. Cathcart note that in 44,000 injections of arsphenamin which have been given in the Section on Dermatology and Syphilis of the Mayo Clinic only thirty-eight cutaneous reactions of various types have been observed. From a careful study of thirty-three of these cases the writers are led to believe that arsphenamin is only one of several factors in many cases of postarsphenamine cutaneous reaction and dermatitis. There seems to be an induced state of hypersensitivity as yet merely clinical and circumstantial, yet rather suggestive of focal and intercurrent infections. The evidence of this is as yet merely clinical and circumstantial, yet rather suggestive and of some practical bearing on prevention and treatment. Arsenicals in general are by no means essential to the production of typical and severe dermatitis of the exfoliative type. One of the worst cases ever seen by Stokes was the sequel of a single injection of mercuric salicylate and the mere painting of iodine on the skin has been responsible for other severe and extensive cases.—(*Arch. Derm. and Syph.*, Jan., 1923.)

The Electrocoagulation Method of Treating Diseased Tonsils

Frank J. Novak, Jr., Chicago, employed this method in 100 cases. Without exception, the patients had a stormy experience beginning a few hours after operation. Pain was uncontrollable save by liberal doses of morphin. There was extreme difficulty in swallowing, much greater than after tonsillectomy. The plate was extremely edematous, and speech was impossible. The intensity of this reaction persisted through the sixth day. Whatever logical basis electrocoagulation of diseased tonsils may have, from a theoretical standpoint, is far overshadowed by the unsatisfactory results in actual practice. Novak believes that the method is entirely inadequate, inaccurate and unsatisfactory, and cannot in any manner compete with the accepted present-day methods of tonsillectomy.—(*J. A. M. A.*)

High Grade Choked Disks in Epidemic Encephalitis

William G. Spiller, Philadelphia, reviews the literature to determine what has been published concerning choked disks in epidemic encephalitis, and reports two more cases which came under his observation.—(*J. A. M. A.*)

The Standard of Cure in the Treatment of Gonorrhea

W. L. Harnett gives this method of treatment:

1. After thorough examination the case, if the posterior urethra is found to be infected, is placed on urethro-vesical irrigations of potassium permanganate 1-8000, twice daily, administered by an orderly. For the first 68 cases of the series the routine was to commence with anterior irrigations, changing to posterior irrigations only when the acute symptoms were subsiding. Later this was changed, as it was found that there was a tendency on the part of medical officers carrying out the treatment to delay the change to posterior irrigations much too long. Anterior irrigations are now used only for cases of anterior urethritis, all cases in which the posterior urethra is found to be infected being treated with posterior irrigations from the start. The strength of the lotion used is raised, as rapidly as tolerated, to 1-2000.
2. When the discharge has thinned and the symptoms have subsided, gentle prostatic massage twice weekly is commenced. Irrigations are now given once daily only.
3. When the discharge has ceased except for a "morning drop" the anterior urethra is carefully examined with the urethroscope. Inflamed follicles are cauterized, soft infiltrations dilated with Kollmann's dilator, cystic follicles massaged over Wyndham Powell's penile dilator, or other instrumental treatment instituted as necessary. As long as a "morning drop" is present, daily irrigations are necessary. At about this time irrigations of oxycyanide of mercury, 1-4000 to 1-2000, are substituted for those of potassium permanganate.
4. When the "morning drop" has ceased the daily irrigations are stopped. Treatment now consists of massage of the prostate twice weekly, preceded by an irrigation of oxycyanide of mercury 1-2000, with which the bladder is filled. First the prostate and then the vesicles are massaged, a drop of the combined secretion is caught on a slide and carefully spread with a platinum wire if thin, with the end of a slide if thick. The slide is dried, fixed, and stained with methylene-blue. The patient passes the first portions of the bladder contents into a urine glass; the characters of the threads and plugs, if any, are noted, whether sinking, semi-floating or floating, opaque or semi-transparent, thread or comma-shaped, etc. If in doubt as to their character, a sample should be fished out and examined under the microscope. The stained slide of the mixed secretions is then examined microscopically. The whole slide is first examined under a low power and the portion most crowded with cells is selected. This portion is then examined under a 1/12 in. objective and No. 2 ocular, tube length 160 mm. Should gonococci be detected, daily irrigations of potassium permanganate are resumed, and the examination is repeated a week later. Should the slide show large numbers of other organisms, daily irrigations of oxycyanide are resumed and the examination repeated as before. Should neither of these conditions be found, the number of polymorphonuclear leucocytes in 20 or 30 fields is counted and the average number per field is recorded. Microscopic plugs (which are frequently present when none are visible microscopically) are included in the count by totalling the number of polymorphs which they contain. Epithelial cells, lymphocytes, and other mononuclear cells are excluded from the count. Prostatic massage twice weekly is continued, and a fortnight later, at the fourth succeeding massage, the count of the secretions is repeated and the result again recorded. The patient in the meantime lives his ordinary life, except that alcohol, sexual indulgence, and such exercises as bicycling and riding are forbidden. At first the cell count will often be found to rise owing to the discontinuance of the irrigations, but later a steady improvement sets in. A reappearance of the "morning drop" or a sudden increase in the cell count is treated by the resumption of daily irrigations for a week or so. Prostatic massage twice weekly with fortnightly cell counts is continued steadily until, in favorable cases, the urine after the massage contains no purulent plugs, and the slide shows an absence of microscopic plugs and a polymorph count of not more than 1 per field, preferably a good deal less. The patient is then ready for the final test. During successive counts the steady fall in the numbers of polymorphs will have been accompanied by the appearance of mononuclear and epithelial cells (the latter in large numbers indicate that treatment should be stopped for a while), by the reappearance of lecithin bodies, corpora, amylacea, spermatozoa, and other constituents of the normal secretions.
5. For the final test all treatment is suspended for a week or ten days, during the last three days the patient takes alcohol regularly. The patient is examined after holding urine for some hours. There should, of course, be no gleet discharge obtainable. The urine after prostatic massage should be clear and any threads or plugs should be mucus only. The slide of the mixed secretions should show no microscopic plugs and the average polymorph count of 20 or 30 fields should not exceed 1 per field.

The final examination with the urethroscope is then made and, if negative, the patient is passed as cured.

A summary of 22 cases is given. The average period requisite to reach the above standard has been found to vary from 97 to 137 days, according to whether instrumental treatment is required or not.—(*Lancet*, London, February 17, 1923.)

The Treatment of Vaginal Discharge

Discussing vaginal discharge in little girls, A. W. Bourne says gonococcal or "idiopathic" vulvo-vaginitis is resistant unless properly treated. The vulva should be thoroughly exposed by wide separation of the child's thighs, and gently swabbed twice daily with a 10 per cent. solution of protargol. Should the discharge and soreness of the vulva not clear up after a few days' treatment, a small pledget of cotton-wool about the size of a pea is soaked in protargol and carefully introduced into the vagina by the aid of forceps. As the infection is said not to affect the upper part of the vagina in children, it should only be passed just through the hymen.

When there is a purulent, or muco-purulent discharge in nulliparous non-virgins, in the absence of intrapelvic lesions, the parts to be attacked are the cervix, the urethra, and Bartholin's glands, if they are tender or palpable.

The cervical canal is the most resistant and difficult to treat. In my opinion it is advisable to commence the treatment of all chronic cases by what amounts to an operation. The patient is anaesthetized, and the urethra is dilated by metal dilators to the size of No. 9 or 10 Hegar. While the orifice is being distended by the largest dilator, a scalpel is taken and the small crypts immediately behind and to one side of the orifice, which so often exude pus on pressure, are opened up by a cutting down on to the dilator as it is held in situ. The laid-open crypt is then cauterized by Paquelin's cautery, or, in default of this, by the silver-nitrate stick. The dilator is then removed and several swabs of gauze soaked with 15 per cent. protargol are passed into the dilated urethra, one after the other. The last is left there during the remainder of the operation. The cervix is then exposed, and any erosion is either thoroughly burnt by the actual cautery, or else excised. The cervical canal is then dilated (not the internal os) and its mucous membrane is treated by swabs soaked in 10 per cent. formalin. This is the most penetrating antiseptic we possess, and it is better calculated to penetrate into the deep branched glands of the cervix than any other. Moreover, it is a very potent germicide in the strength of 10 per cent. At least five minutes should be spent in the repeated swabbing of the canal with formalin, care being taken that it does not spill into the unprotected vagina. If there is reason to suspect that the body of the uterus is infected on account of menorrhagia and congestive dysmenorrhea, the author dilates the internal os, cures, and introduces an 8-inch-long rubber tube, which is stitched to the cervix by catgut, and strapped to the thigh, through which Milton's fluid or eusol is injected every four hours for the next five or six days, or as long as the tube remains attached to the servix. After the cervix has been treated, the Bartholin's glands are carefully felt for. If palpable as small, hard bodies, the size of a pea, or larger, they are pinched up by the left finger and thumb and excised by cutting down on to them.

The after-treatment consists in the daily insertion of a protargol bougie (15 per cent.) (1 1/4 in. x 1/4 in.) into the urethra for one or two weeks, and the nightly use of a protargol pessary of the same strength. During this time the patient should use a douche of Condy's fluid. Under this treatment the discharge will frequently clear up entirely, but if it does not, it is due to infection still remaining in the cervix. This may be treated by swabbing the canal thrice a week by an antiseptic, such as 10 per cent. formalin (care being taken to protect the vagina and vulval skin from the fluid) or "violet-green" (1 per cent.) or picric acid (saturated solution in alcohol). It is a tedious method, requires sometimes many weeks, and often fails.

A method which promises better results is the ionization of the cervical canal by a zinc electrode passed through the external os, while the vault of the vagina contains a dilute solution of zinc sulphate. The current will effect the penetration of the ions for two or three millimetres—i. e., into the mucous glands of the cervix, wherein lurk the gonococci.—(*Lancet*, London, February 24, 1923.)

Treatment of Gonorrhea of the Urethra in Women

Fabritius used Arneth's method, the principle of the method consisting in the intensive treatment of the urethra as the chief source of infection and mild treatment of the cervix. Small glass rods were used in carrying out urethral treatments. In early cases the cure, averaging from 2 to 4 weeks, might almost be called abortive. Chronic cases required several months, none over four months.—(*Munch. med. Woch.*, January 5, 1923.)

A Comparative Study of Neisserian Infection in the Male and Female Urethrae

Johnson, of the Brády Urological Institute, has demonstrated that the female urethra corresponds to that portion of the male urethra lying between the vesicle opening and the prostatic utricle. Coincident to the formation of prostatic ducts in the male there appear similar glands in the female. The urethral glands in the female correspond to the prostatic ducts which lie above the orifice of the prostatic utricle. Skene's ducts are the homologues of the prostatic glands which lie below the orifices of the prostatic utricle. Bartholin's and Cowper's glands are true homologues, says Hamilton W. McKay.

In the female the diagnosis of subacute and chronic gonorrhea is especially difficult to establish or deny. Cultures should be made of the material from the urethra and peri-urethral ducts or from Bartholin's glands, just as we examine the massaged contents of the prostate and seminal vesicles. The examination should be made with a definite routine labeling slides and cultures from each suspected area. Swartz's method for the cultivation of the gonococcus is recommended.

Few agree exactly on the best method of treatment of acute gonorrheal urethritis. Methods and drugs are legion and are generally unsatisfactory. Gentleness of application is more important than the selection of what is believed to be the all important drug.

In chronic gonorrhea of the female where Skene's glands are almost always infected, the author has irrigated with a Luer syringe and blunt pointed needle with most pleasing results. Where the duct is partially stenosed, we pass a fine probe and incise, or better, fulgurate. The latter procedure has given excellent results.—*Southern Med. Jour.*, March, 1923.)

A Clinical Investigation of Vulvovaginitis

Vulvovaginitis is an infection which frequently is gonorrheal in origin, but may, even in purulent varieties, be non-specific. Filth, unquestionably, plays a part in predisposing to the infection and may be the chief cause in the milder types. Diagnosis rests upon clinical evidence of the disease and smear examination made by an expert. Cultures prove positive in about 50 per cent. of gonorrheal cases and are, therefore, not requisite for diagnosis.

Purulent vulvovaginitis should be vigorously treated by an approved method, such as that suggested by Gellhorn, consisting of daily injections into the vagina of a 1 per cent. silver nitrate in an ointment of equal parts of lanolin and white vaseline. Discharge and excoriations disappear rapidly under this treatment and the average duration of treatment was 3 to 4 weeks. The treatment is simple and can be entrusted to nurses or mothers under supervision. A daily tub bath is an aid to local treatment and in mild gonorrheal cases is all that is required for cure. Determination of cure rests upon the disappearance of clinical evidence of the infection, 3 negative smears at intervals of 1 week after suspending treatment, and a period of observation equal in time to the duration of treatment.—(*Surg., Gyn. and Obst.*, January, 1923.)

Gonorrhea in Women. Treated with Contramine Pessaries

Treatment with intramine pessaries, in G. W. Rundle's opinion, proved superior to all other tests; 8 per cent. of the cases developed a local dermatitis.

McDonagh has elaborated a more active preparation of sulphur di-ethyl-ammonium di-ethyl-di-thio-carbamate (contramine), which has all the advantages of intramine with none of the disadvantages. Contramine pessaries have been used in the London Lock Hospital for over a year and not a single case of dermatitis has resulted.

Contramine pessaries should be used only when the discharge is chronic. They may be inserted nightly by the patient, 30-40 being used in each case. One hundred cases have been treated, only four have relapsed.—(*Lancet*, London, March 3, 1923.)

Correspondence

American Medical Aid for Russia

To the Editor of the MEDICAL TIMES:

An earnest effort is being made by the American Medical Aid for Russia, the Medical Division of the American Friends Service Committee (Quakers), to collect money, clothing, instruments, books and journals for our medical colleagues in Russia.

The condition of these men is deplorable. Removed happily by nature of their profession from the political disturbance, they have suffered doubly from the troubles of the last six years in

that, while the demands for their assistance have multiplied immensely, they have been almost deprived of medical supplies, indeed, even of the necessities of life. They not only lack the barest necessities of food and clothing, but are terribly in need of drugs, medical and surgical instruments and of scientific books and journals in English.

The Quakers are in a position to assure American physicians who are willing to assist their Russian colleagues, that contributions will be promptly and efficiently distributed in Russia. Literature will be distributed in co-operation with the Russian Health Department through notices printed in the official bulletin, to the effect that medical literature in English is available and can be had on request. The Quaker relief workers will directly supervise the distribution of this material to Russian hospitals, medical schools and individual physicians.

If every one of us would make his personal effort to help send such money and clothes as he can, to send files of journals which he does not use himself, as well as such medical books and instruments as he can spare, it would be an immense help. It's not a charity; it's a duty.

W. S. THAYER.

103 Park Ave., New York.

[If every reader of THE MEDICAL TIMES would give a book, instrument, article of clothing or other necessity to this very worthy object, enormous good might be accomplished. Will not our readers help their Russian confreres? Little or much, anything will be appreciated.]

Send to Mr. Thayer at 103 Park Ave., New York.]

EDITOR.

An Appeal for Information on Maternal Welfare

The Committee on Maternal Welfare of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons is anxious to procure accurate information as to the progress which each State is making in the matter of Maternal Welfare in order to formulate a report for our annual meeting in Philadelphia, in September.

A preliminary programme was published in the issue of the *American Journal of Obstetrics and Gynecology* for June, 1923, which it is hoped may be a suggestion of an outline for National work among all organizations which have a common basic line of endeavor including Medical Societies, Departments of Health, and Commissions of Social Workers.

We shall be under many obligations if you will be kind enough to send at your early convenience a brief synopsis of the results accomplished in your State and most important if possible a contrast of the record of the clinics or regions where patients have been privileged to have pre-natal care with the statistics of the community in general where no supervision has been afforded the prospective mothers.

These it is planned to have incorporated into the completed survey to be presented to the Association and to be published in the Annual Transactions later on.

DR. HENRY SCHWARZ, St. Louis,

DR. GEORGE W. KOSMAK, New York City,

DR. GEORGE CLARK MOSHER, Chairman, Kansas City.

The Average Mind

To the Editor of THE MEDICAL TIMES:

Referring to your editorial on "The Average Mind," do you not realize that when we are considering the entire population, the average mental age must be the same as the average physical age?

The "mental age" of the psychologists is an arbitrary thing established on selected individuals who had been specially trained to meet such tests. It is entirely proper when used on such specially trained persons, but is wholly misleading when applied to the general population, or to persons trained in other ways.

Mental powers are developed by mental exercise, and the tests are scholastic ones applied by teachers to students in school. Children normally begin school at about six years of age. The standard for a ten-year-old is determined by tests applied to children who have been trained in school for four years. The standard for a 13-year-old is determined by tests applied to children who have been trained in school for seven years, and so on.

In 1870 the average schooling of the average child in the U. S. was about 2.5 years. In 1900 it was 4.45 years, and in 1918 it was 5.38 years. The army tests were school tests applied to average citizens who had had an average of between four and five years of schooling, and the psychologists were horrified because these citizens did not show better than seven years of schooling.

The actual mental development of an adult, and that shown by ordinary psychological tests are widely different things.

C. L. REDFIELD.